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AMERICAN GAS JOURNAL

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VOLUME 143, NUMBER 1

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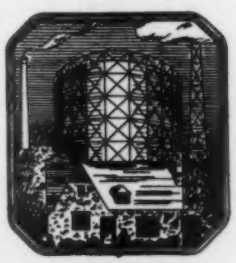

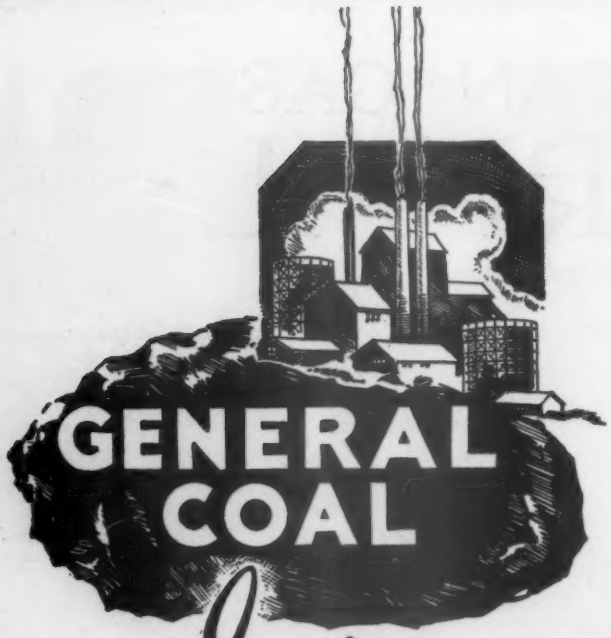

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JANUARY
1936

AMERICAN GAS JOURNAL

VOLUME 144
No. 1

COMPETITION—OUR GREATEST PROBLEM

As the Editor Sees It

ANOTHER year has passed. It opened with the Gas Industry facing some of the most serious problems in its history. It ended with many of these problems still unsolved.

Whither are we heading, and what progress are we making? These are questions we may well ask ourselves. So at this season, when New Year's resolutions are in order, and while the accountants and statisticians are working feverishly to turn out statements of last year's operations, we may profitably take a few moments to review what we have accomplished during the past twelve months and where we now stand with respect to the future.

The fog of uncertainty seems to be lifting a little; and we can now see that competition is, and undoubtedly will continue to be our greatest single problem. The electric industry seeks to take the cooking and water heating load from us. The oil industry seeks to prevent our securing the house heating business and to displace the gas fired water heater. The coal industry seeks to hold or regain a place in all three of these fields with new and efficient equipment. The ice man is fighting a three cornered battle with the gas and electric industries for the refrigeration business. Butane and propane have become our most dangerous competitors in the large industrial field. No branch of our business is secure from invasion by other fuels. The battle is on all along the front. It is a fight to the finish. Let no one minimize the seriousness of the situation or think that it does not affect him. It is a matter of personal concern to every member of the Gas Industry.

Competition Fifty Years Ago

Here and there we hear dire predictions regarding the future of the gas business. Let us turn back the pages of history for a moment. Perhaps the conditions we face today are after all not so new.

We quote from the address of the President at the Seventh Annual Meeting of the American Gas Light Association held in Philadelphia on October 15, 1879. "At the outset, it seems eminently proper to inquire what is the present condition of the gas interest in this country. . . . For several years this interest has been subjected to a severe ordeal. The ordeal to which I have alluded is the competition which has arisen from the discovery of petroleum in large quantities, the progress made in the art of refining it, and the invention of lamps adapted to its use. These facts, together with another, to wit, the very low price to which this natural illuminant has declined, have operated powerfully against the gas interest in many cities, and perhaps to some extent in all places where illuminating gas is made and sold. In some the use of gas has fallen off, it is said, as much as one-third; but this is exceptional."

At the Annual Meeting of the American Gas Light Association in 1878, Mr. W. H. Price and Mr. George B. Neal, both Vice Presidents of the Association engaged in a discussion of prospective electric competition. "I should like to ask Mr. Price," said the latter, "if he really thinks that if this electric light should prove to be successful, our avocation is gone?" And Mr. Price replied: "I did not mean to be so understood. . . . What I meant to say was this, that if all these statements were true in their length and breadth, if the electric light could be produced as cheaply and carried into private houses in the same manner as gas, and if all the other wonderful things can be done that Mr. Edison is represented as being able to do, then our business as gas men is gone, and our capital would be largely affected."

Nine years later at the Annual Meeting of this same Association in 1887, Mr. S. G. Stiness, being asked by the President to discuss this subject, said: **"As sure as the sun shines today, the electric light has come to stay, and to exist as an active competitior of gas.** I am not one of those who believe or maintain that the gas works of the United States are to be annihilated, or are to be entirely turned into mediums for furnishing heating gas."

The gas literature of fifty years ago was filled with statements such as these. Gas sales were not increasing satisfactorily. Many saw little future for our industry.

Competition Today

Today the same petroleum industry and the same electric industry which were going to destroy us fifty years ago are still fighting to take our business. Although we have gained incomparably in strength during that half century, the same dire predictions are made as to our future.

Far be it from us to belittle the strength of our competitors. Let us rather overestimate it. Then if we appraise correctly the convenience and economy of our own service and utilize aggressive modern methods of publicizing and selling it, there can be little doubt that the gas industry will eventually emerge stronger than ever before, and continue for years to come as a successful competitor of other fuels. Let no one think, however, that we shall succeed without vigorous sustained coordinated action in which every member of our industry has a part to play.

In order to understand our present situation better we again turn back the pages of history for a moment. When the gas industry actively entered the fuel business a little over thirty years ago, coal was its only real competitor. The convenience of our product rapidly put it in a class by itself and we soon acquired a large cooking and water heating load. Commercial and industrial consumption and finally a limited amount of house heating business followed. We had little real competition and each customer added was regarded as a permanent acquisition as long as he remained in our territory. Many of us apparently came to think that gas service should sell itself, judging by the slender appropriations for new business and advertising. What a change was this from the days when the gas industry was fighting for business and actually gave away appliances to stimulate the use of the service!

Our competitors, however, were not asleep. The electric industry and the oil industry in particular were hard at work. They decreased the price of their services, improved appliances for utilizing them and publicized them as the modern methods of cooking, water heating and house heating. Finally, we came to realize that we were in the midst of a little struggle in which our competitors at times did not limit themselves to fair and ethical methods.*

An already strong competition from electricity for cooking and water heating business was greatly intensified by the destructive activities of governmental agencies in trying to force down electric rates. With some reduction accomplished and others in prospect the electric industry originated and many of its members adopted the Objective Rate Plan** which Mr. F. A. Newton described at the recent A. G. A. Convention as "probably the most promotional scheme of rate making devised in recent years." Manufacturers of electric equipment developed low priced, though undoubtedly inferior, ranges, water heaters and refrigerators. With low rates and cheap appliances the electric industry set out to recover its lost revenue. As to its success, suffice to say that a new maximum output is reported recently to have been attained.

Incremental costs in the electric industry are low. In other words, a large percentage of additional revenue secured is clear profit. Thus the electric utilities are rapidly gaining back the earnings which they lost through rate reductions; and they are moving heaven and earth to take our business away from us in a determined effort to increase sales.

All unbiased investigators, so far as we are aware, have found that gas is in every respect as convenient as electricity for cooking, water heating and refrigeration, is more economical at usual rate levels and is much faster for top burner cooking. For thirty years gas ranges have set the style in cooking equipment, and they retain that leadership today. But the electric industry publicized its product with the utmost vigor, and succeeded in making many persons believe that it offered the best and most modern service. It followed this up with aggressive and up-to-date sales campaigns. Let us frankly admit that we of the gas industry did not do a comparable job—at least until recently.

In the house heating field many members of our industry have been frightened by the bugbear of peak loads to a point where they have been unwilling to make rates which will attract any substantial amount of such business. The oil man has not been slow to take advantage of his opportunities; and when an oil furnace goes in, a gas water heater usually comes out because most modern oil furnaces are arranged to provide hot water throughout the year.

Fighting Spirit

The past year has seen a reawakening of our industry, a revival of the fighting spirit which carried it through its early days when gas was both laughed at and feared, through other days when competition threatened to annihilate it and through the days when it was seeking and getting the cooking and water heating load. We have seen more modern and aggressive sales methods employed, and already there are tangible results.

On December 27, 1935, the American Gas Association released the following statement: "The gas industry enters the year 1936 with the largest number of customers ever connected with our mains. Natural gas and manufactured gas companies, supplying towns and cities with a total population of 80,000,000, serve a total of 16,002,000 customers. Of these, 9,973,000 are served by the manufactured gas industry and 6,029,000 by the natural gas industry.

"Sales of gas ranges in 1935 approximately 1,100,000, a gain in sales of 30% over the sales of gas ranges in 1934. Nearly 75% of these sales are of relatively high priced ranges including modern automatic features such as oven heat control. This gain of 30% in 1935 over 1934 is on top of a gain of 18.5% in 1934 over 1933.

"Sales of gas ranges in 1935 alone exceeded the entire number of electric ranges now in use installed over the past 25 years; a large percentage of these electric ranges are located where no gas service is available.

"Revenues of the gas industry aggregated $726,306,000, a gain of 3.4% over 1934.

"For industrial and commercial purposes sales of manufactured gas and natural gas in 1935 averaged about 10% above the previous year. House heating sales registered a gain of 29%. Domestic sales of manufactured gas held their own while sales of natural gas for domestic uses are up 6.2%."

This improvement is not all that we should like to see, but it is a start. We should like to see more of

---

* *See Editorial "Truth in Advertising," American Gas Journal, July 1935; and "The Urgent Need of Cooperative Advertising Campaign," an address before General Session A.G.A. Convention, reprinted in American Gas Journal, November, 1935.*

** *See American Gas Journal: January, 1935, pp. 6-11; March 1935, pp. 7 and 33; April 1935, p. 31; July 1935, pp. 5 and 23-24, and November 1935, pp. 6 and 34.*

an increase in sales per meter, but recent improvements in the efficiencies of gas appliances have undoubtedly tended to hold these down. A valid explanation no doubt; but we of the gas industry are looking for results, not explanations. We merely raised the point to emphasize the fact that this is a record of an industry fighting a winning battle and not of one being crowded to the wall.

Modern business conditions must be met by modern methods. The day is past when each individual company can work out its independent salvation. The competitive forces at work have become so far reaching that cooperative action by groups of gas companies or through the American Gas Association or a regional association has become almost imperative. Only in this way can an effective program be adopted which is not excessive in cost.

Cooperative Advertising

The Radio Broadcasting Program, featuring the "Mystery Chef," is a splendid example of the adoption by a group of gas companies of modern cooperative methods to publicize gas. The public response to date has exceeded expectations. So great was the demand for recipe books by companies supporting the broadcasts that the original order of 300,000 had to be increased before the first books were off the press. At this early date requests for more copies are beginning to come in with the word that the first shipment has been exhausted.

In such cases, at least five per cent of the company's customers must have heard the broadcasts since December 3, 1935, and have been sufficiently interested to ask for a copy of the recipe book. Do modern cooperative methods pay? Here at least is one indication.

The proposed National Advertising Campaign has already secured over fifty percent of the required support, with comparatively little effort having yet been put upon it.

Encouraging as is this showing, there are certain inherent problems connected with any cooperative advertising campaign in the gas industry. We may just as well face them squarely.

National advertising in the electric industry is done mostly by the few large and powerful manufacturers of electric equipment and appliances. Their only interest in our business is that of competitors who are seeking every possible way of taking it away from us. We have no comparable manufacturers in the gas industry. Instead of a few large ones, we have a number of moderate size. So the gas companies have thus far taken over almost the entire job of popularizing gas. The gas companies, however, are in many cases affiliated with electric companies or electric departments, and for that reason cannot properly sponsor advertising which might be interpreted as favoring one service to the possible detriment of the other. Cooperative advertising of gas companies must therefore be conservative; and it is difficult to make it a sufficient protection for the independent members of our industry, who are forced to compete with a service publicized with the most aggressive methods and with claims which, in our opinion, are frequently so exaggerated as to overstep the bounds of truth.

Here lies a real opportunity for the Association of Gas Appliance and Equipment Manufacturers. Its members have no ties to prevent aggressive action on its part. Progress in our industry should mean more sales of appliances and equipment. The manufacturers have an interest in the future of the gas utilities equal to that of the utilities themselves. Therefore, to the extent that its resources permit, this new Association might well add its own publicity to that now being ably and effectively put forward by the gas companies. The gas companies must almost necessarily be conservative; the manufacturers could evidence the aggressive fighting spirit of the industry.

We have said that everyone has a part to play in this struggle for business. We did not mean only that each employee should do his job, but in addition sell and create good will whenever possible. The crying need today is for lowering operating costs and fixed charges so that rates may be established that will give our product even greater competitive advantage than it now enjoys, and we at the same time can make a fair profit. The sales department, the rate engineer, the technical man, in fact every person connected with the industry can aid in bringing this about.

Still further improvements in the efficiencies of gas appliances are needed, and we confidently believe can and will be brought about. We also believe that the reduction in sales which this may tend to bring about will be temporary, and that our stronger competitive position will enable us to make up the loss and more besides. No industry ever prospered without improving its product or the appliances to utilize it.

Many believe that house heating offers the gas industry its greatest opportunity for expansion. Others fear the peak load which it unquestionably invites. Do not most of us look at it as a business to be handled with plant and distribution apparatus developed to supply a maximum day send out possibly 1½ times the average? If we are to handle high peaks let us develop apparatus especially for that purpose. It should be rugged, flexible, dependable and of low first cost; but the expense of operating it may be relatively high. The base load should be handled with equipment designed to give maximum economy with business of the type we now have. The attitude of the gas industry today does not favor the man who says: "We can't do it." What we want to know is how we *can* do it to best advantage.

Years ago, Henry Ford developed an automobile that he called the Model T, and most of us called Lizzie. It was a marvel of its time. On the rough country roads that were then the rule it was unbeatable. It would go about everywhere and do about everything except climb a tree or telegraph pole, and it did not seem to bother it very much when it made an unsuccessful attempt to do that. The average person could take it apart and put most of it together again, and the village blacksmith could make any major repairs that we could not handle ourselves. But times changed. Concrete roads became common even in the rural districts; and the old dirt roads were hard surfaced. Faster, more comfortable and better looking cars were built to take advantage of these new conditions. Competition became keen, and Ford began to lose business. You remember what he did. He threw past achievement to the winds and set out deliberately to meet the changed conditions with something that would meet competition as it then existed. What is more, he has continued to improve his automobiles and to meet competition successfully. He has had the courage, ability and willingness to adapt himself to the times.

During 1935 the gas industry has given evidence that it intends to do likewise. It has adopted modern methods of publicizing its product and has taken a truly aggressive attitude. When it has been confronted with a serious problem in the past it has always shown the ability and courage to handle it. The present situation will be no exception.

(Continued on page 39)

B. H. GARDNER
Director of Sales, Columbia Group

Columbia "Load Builders" Add Over a Billion Feet New Gas Heating Load

By
Howard C. Minnich

Assistant Advertising Manager
Columbus Group

Inter-Family Competition Produces Results

COMPETITION is indeed the life of trade—and of selling. The truth of this sound business axiom was impressingly furnished by Columbia Gas & Electric Corporation's recent systemwide sales contest on house heating equipment in which eight operating Groups were pitted against one another in heated competition for sale laurels. For eighteen strenuous weeks the contest waged. When the final results had been counted the remarkable total of 1,386,860,000 cubic feet of estimated annual new gas heating load had been added to Columbia's mains, establishing an all time System record for new heating business.

The 1935 House Heating Contest was conceived and directed by Mr. B. H. Gardner, Director of Sales for Columbia System. The eight operating Groups were classified into two divisions of four Groups each, according to number of meters served. Quotas were assigned each Group on the same basis. All records were kept in M.F.C. of estimated annual gas consumption for each type of heating appliance.

Total prizes valued at more than $3,500 were offered to both the Groups and to individual salesmen. A handsome silver trophy was awarded to the winning Group in each Division by Mr. Philip G. Gossler, Columbia's president.

Group Competition

The keenest competition existed between the eight Groups throughout the Campaign. In Division "A" which was composed of the smaller Groups, Indiana carried off the top honors. With less than 1,000 customers the Hoosier organization under the direction of Paul Miller and James Peters, installed 164.5 per cent of their assigned quota. Virginia Group, also breaking its quota, finished second and Binghamton took third place.

Doing a nice job throughout the contest, Cincinnati made 170.2 per cent of quota to capture first place in Division B. Columbus, with the highest quota of the contest, reached the splendid mark of 149.1 per cent to take second honors. Pittsburgh and Dayton also broke their quotas to make it unanimous in this Division. The former Group finished in third position.

Awards were presented to the winning Groups by Mr. Gossler personally at an all-System sales meeting held at the conclusion of the campaign.

Salesmen's Prizes

For individual recognition the eighteen week campaign was divided into six periods of three weeks each. Ten $15 awards were made to the ten highest salesmen for each three-week period. After a salesman once received a period prize he became ineligible for future period awards. This plan gave more salesmen an opportunity of sharing in the prize awards and intensified the interest throughout the drive. Counting ties, a total of sixty-six "Load Builders" won period prizes.

In addition to these period awards, twelve grand prizes were offered to the twelve salesmen producing the greatest volume of business during the entire contest. Actually thirteen awards were made since one representative qualified chiefly through the sale of a large commercial job. Since it was desired that no recognition be withheld from men who would otherwise have qualified for one of the twelve grand prizes, a duplicate award was made in this case.

Special Incentive

As a special incentive to the salesmen during the first part of the campaign, five all-expense trips to the American Gas Association convention at Chicago in October, were awarded to the five leading produc-

ers in the first eleven weeks of the contest.

The Load Builder

Promotion of the contest was built around the theme of "Load Building." The weekly sales bulletin reporting the latest results of the campaign was called "The Load Builder." Leading salesmen were frequently referred to as "Load Builders."

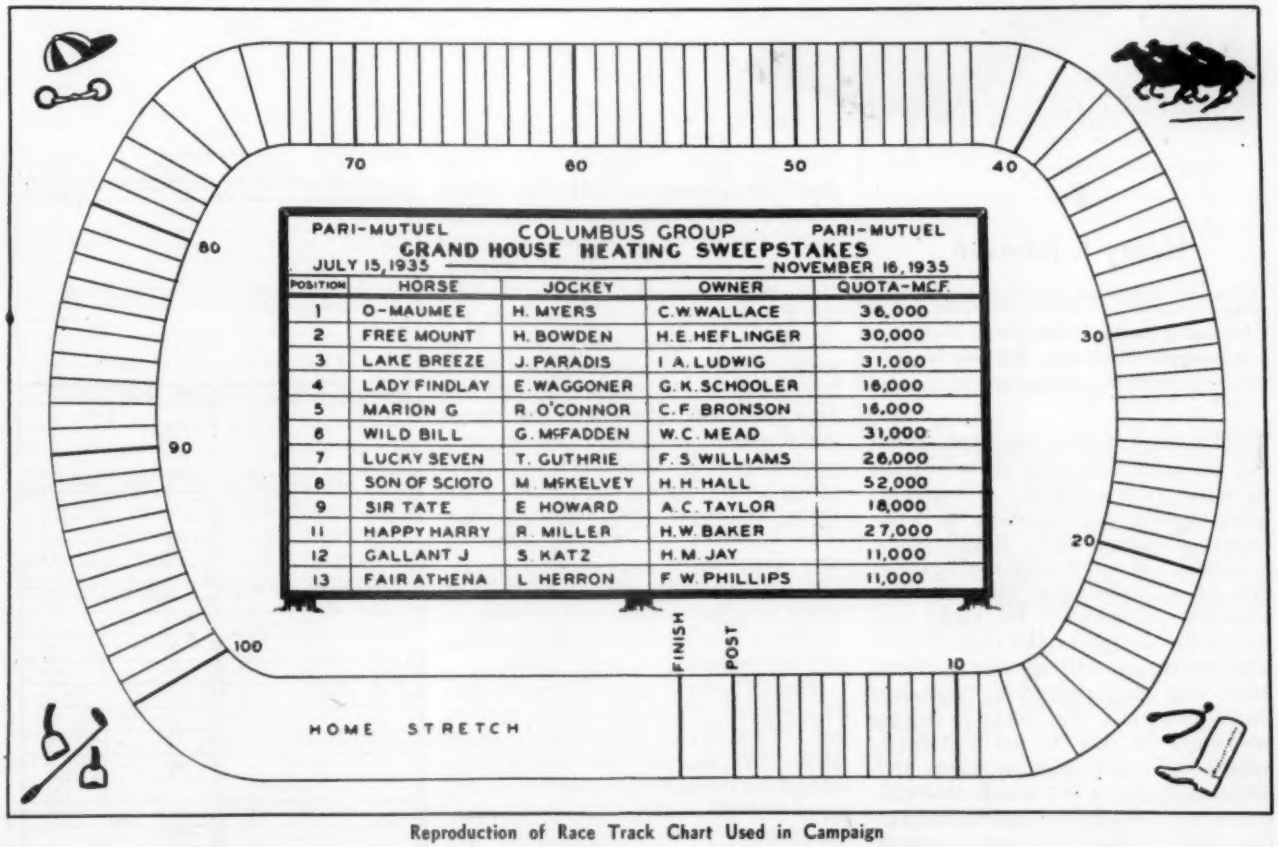
A large share of the credit for the success of this contest goes to Mr. Gardner and his staff and to the Group sales managers who kept their organizations going at top speed throughout the campaign. It is interesting to note that in adding the new heating load, 21,230 units of equipment were installed by the eight Groups. This in itself, gives some idea of the splendid selling job accomplished.

TWO INSTEAD OF ONE

Mr. Loebker of Cincinnati, tried to sell a grocer a unit heater to heat his grocery but without success. Failing in this attempt he shifted the attack and succeeded in selling a conversion burner for the grocer's home. The operation of this burner proved so satisfactory that before the end of the campaign, the grocer was sold a unit heater installation for his grocery and market.

"The Load Builder"

Sport of Kings Supplies Drama In Ohio Fuel Gas Company Contest



PARI-MUTUEL — COLUMBUS GROUP — PARI-MUTUEL
GRAND HOUSE HEATING SWEEPSTAKES
JULY 15, 1935 — NOVEMBER 16, 1935

POSITION	HORSE	JOCKEY	OWNER	QUOTA-M.C.F.
1	O-MAUMEE	H. MYERS	C.W.WALLACE	36,000
2	FREE MOUNT	H. BOWDEN	H.E.HEFLINGER	30,000
3	LAKE BREEZE	J. PARADIS	I A. LUDWIG	31,000
4	LADY FINDLAY	E. WAGGONER	G.K.SCHOOLER	16,000
5	MARION G	R. O'CONNOR	C.F. BRONSON	16,000
6	WILD BILL	G. McFADDEN	W.C. MEAD	31,000
7	LUCKY SEVEN	T. GUTHRIE	F. S. WILLIAMS	26,000
8	SON OF SCIOTO	M. McKELVEY	H. H. HALL	52,000
9	SIR TATE	E. HOWARD	A.C. TAYLOR	18,000
11	HAPPY HARRY	R. MILLER	H.W. BAKER	27,000
12	GALLANT J	S. KATZ	H.M. JAY	11,000
13	FAIR ATHENA	L. HERRON	F.W. PHILLIPS	11,000

Reproduction of Race Track Chart Used in Campaign

THE fascinating lure of the racing turf—the drama of spirited thoroughbreds pounding down the home stretch—the intrigue of holding a winning sweepstake ticket—these supplied the colorful background for a sales campaign on gas house heating equipment conducted recently by The Ohio Fuel Gas Company of Columbus, Ohio.

This interesting contest provided part of the impetus which enabled the company to install 458,472,000 cubic feet of new estimated annual gas heating load in an eighteen week campaign. The Ohio Fuel Gas Company, otherwise known as Columbus Group of Columbia Gas & Electric Corporation, was assigned a heating quota of 305,000,000 cubic feet in the parent company's systemwide sales drive. It exceeded this quota by over 50 per cent in the most successful heating campaign in its history.

In the House Heating Sweepstakes Contest, each district was represented by a "horse" which was appropriately named after some characteristic of the district or district manager. The district sales manager became the "jockey" and the district manager the "owner." Progress of each district "horse" was determined by the percentage of assigned quota installed during the contest. All records were kept in M.C.F. of annual estimated consumption of each type of heating appliance offered for sale.

Sweepstake tickets were issued to each salesman on his own district "horse," one ticket for each 100,000

(Continued on page 40)

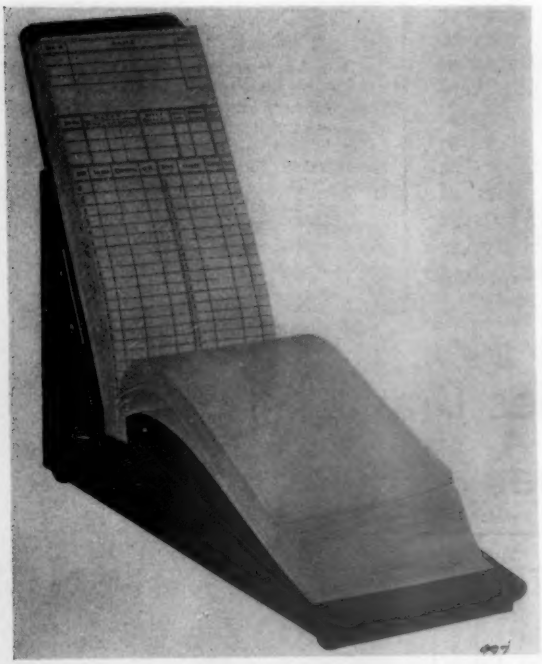


Fig. 8. This illustrates the superior reading position of meter reading sheets punched at the bottom as shown in Fig. 1. It is only necessary to flip the sheet down as compared with the necessity of actually picking the sheet up and placing it between the sheet holding clips or springs. This reduces the wear and tear on the sheets and speeds up the operation very materially.

IMPORTANCE OF RECORDS

By

Henry J. Johnson

Manager, Public Utility Sales Division
Remington Rand, Inc., Buffalo, N. Y.

THIS subject has not been given the attention and consideration to which it is entitled. It ranks at least equally as important as Customer Billing and Bookkeeping methods. It is actually the foundation of all subsequent customer accounting functions. In many respects the design of the records and equipment, as well as the methods used, are even more important because generally the meter reading personnel is not as well trained, supervision cannot be as close and the conditions under which this system must operate are ordinarily unfavorable. Unless safeguards against errors are provided it is likely that any discrepancies which occur in connection with the meter reading are likely to be perpetuated in the billing and bookkeeping operations which follow.

Meter reading errors not only represent a potential loss in revenue, but are almost certain to have an adverse effect on customer good will.

Design of Meter Reading Form

The meter reading sheets should be designed so as to facilitate reference by the meter reader, the billing machine operator and all other clerks who have occasion to use them. This sheet should be designed so as to provide a record for the longest possible period of time consistent with the proper sheet size as well as the durability of the paper stock. This requires not only an adequate number of spaces for meter readings, but also sufficient provision for meter and customer changes. Many companies are still using forms which require rewriting in connection with every customer and meter change. This involves not only an unnecessary amount of transcription work, but also multiplies the possibility of error and also makes it impossible to secure a continuous record showing the performance of each meter.

Sheets should be so designed that readings are entered from the bottom up. This places the larger reading above the smaller one and greatly simplifies the subtraction of the readings and the extension of the consumption. It is particularly important that the customer's name, address and the meter information appear at the open end of the binder instead of at the binding end of the sheet. This requires that the sheets be punched and bound at the bottom instead of the customary design which provides the binding margin at the top of the sheet. Having the sheets punched at the bottom provides a better writing surface and insures more legible writing by the meter reader. It also eliminates the smudging and mutilation of the sheets because when writing at the bottom of a sheet the meter reader's

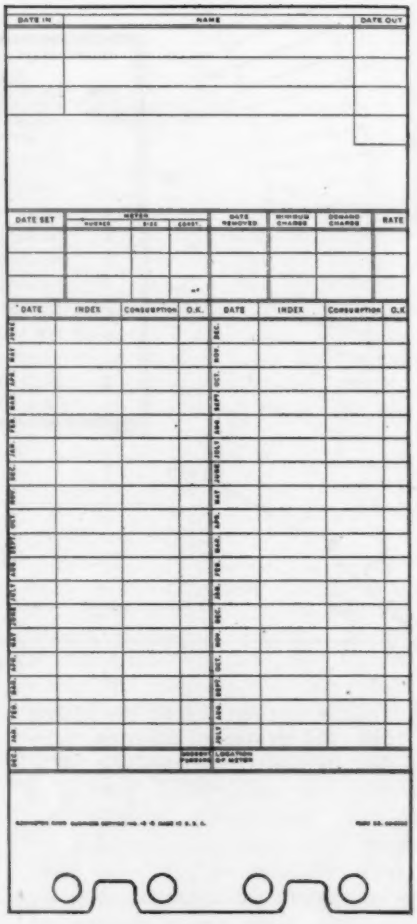


Fig. 1. This illustrates a meter reading sheet designed in accordance with the principles as outlined. This sheet has the binding margin at the bottom and the name, address, account number, rate data and meter information at the open end of the binder.

METER READING AND EQUIPMENT

Fig. 2. This illustrates the usual meter sheet design. Compare the difference in both effort and damage to the sheets when writing at the bottom. Note the inconvenient location of name, address, account number, rate data and meter information for both posting and reference purposes.

hand comes in contact only with the back of the preceding page and that section of the binder provides a hand rest.

This entirely eliminates the necessity of moving the sheets up which not only crumples and mutilates the bottom of the sheets, but also results in the sheets becoming badly soiled by the meter reader's hand resting on the body of the sheet. It is impossible for the meter readers to keep their hands clean due to the conditions under which they must work and the places in which the meters are located.

Having the sheets punched at the bottom makes it possible to place the binder in a rack at the billing machine which holds it in an upright position. This provides a much superior reading angle and greatly facilitates the turning of the sheet.

Figure 1 illustrates a sheet designed in accordance with this description. This sheet provides a three year meter reading record, three meter changes, and four customer changes.

Figure 2 illustrates the usual design and it will be noted that the customer's name, address and meter information appears at the binding end of the sheet instead of at the open end.

Figure 3 illustrates a meter reading sheet with the customer's name, address and meter information at the open end of the binder and the space for meter readings directly above. This design is awkward because it is at the bottom of the sheet and the binder is difficult to hold in

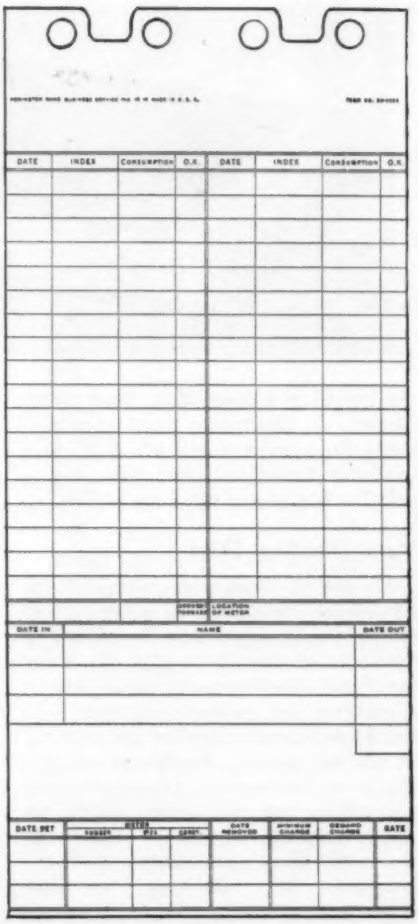


Fig. 3. This design is an improvement over Fig. 2 from the standpoint of writing at the bottom of the form, but the section containing the important billing information is likely to become badly soiled and damaged.

the necessary position to turn the sheets. This design makes it necessary for the meter reader to rest his hand on the lower end of the sheet which results in soiling and mutilating the portion of the sheet where this very important information is recorded.

Extension of Consumption by Meter Reader

It is recommended that the meter reader extend the consumption while on the customer's premises and make a comparison with the consumption of previous months. If the consumption appears to be abnormally high or low he should verify the reading which he has recorded and if found to be correct should place his initials in the "O.K." column. This will entirely eliminate the necessity of sending a special reader to make verification of items of this kind after they have been discovered by a meter book audit clerk. This method eliminates any necessity for delaying the billing while this audit and verification is being made, which requires at least two days, or handling such items as special readings after

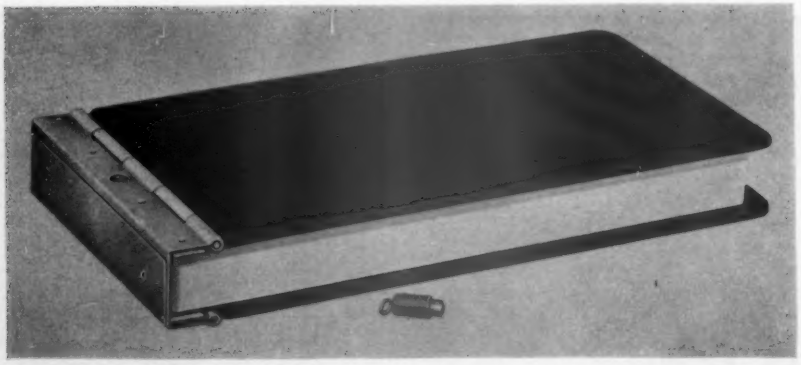


Fig. 6. This illustrates the type of binder designed to meet the requirements as outlined.

the regular billing has been completed. It definitely fixes responsibility for accuracy and in many cases the compensation plan provides a penalty for meter reading errors.

Meter Reading Skips

Figure 4 illustrates a form designed for recording all skips. Several of these sheets may be placed in the front of the binder and whenever the meter reader is unable to secure a reading, the account number, address and meter number are recorded on this sheet. At the end of the day when the binders are returned to the office any of these sheets on which entries have been made are removed from the binder and reassigned the following morning either to a special reader or to a regular reader who will work in that particular section. It has been conclusively demonstrated that a much larger percentage of skips can be secured during the morning of the following day than at any subsequent time due to the fact that if the housewife was away the preceding day she is very likely to be at home at least during the morning of the following day. This also eliminates the delay caused by clerks auditing the meter books after they have been returned to the office and preparing a list of skip readings. This operation would normally require an additional day and either cause a delay in the billing or make it necessary to handle all skips as special billings. This plan also eliminates the necessity of the meter readers returning to the office early enough to audit their own books for the purpose of preparing lists of skip readings. These sheets are the same size as the regular meter reading sheet and may therefore be placed in a regular reading binder. This eliminates the possibility of losing individual slips such as are frequently used. The skip readings on these sheets are arranged in regular meter reading order and by meter reading routes.

Curb Readings

This problem has been almost entirely eliminated by the fact that the meter readers are generally just as permanent as any other employee, and consequently take the same amount of pride in their work. When meter readers were generally temporary employees a great deal of trouble was experienced. If a trouble of this kind is suspected it may be easily checked by inserting a few fictitious sheets in the book. If these sheets show meter readings when returned or fail to show the necessary report it would of course provide positive evidence of curb readings.

Meter Reading Binders

Very careful consideration should be given to the selection of meter reading binders, not only from the standpoint of durability and convenience of operation but also for the proper safeguarding and protection of the contents. The following points will provide an adequate set of standards.

1. It should be light in weight and easy to handle by the meter reader.
2. It should open in such a manner as to permit easy and legible writing.
3. It should be compact so as to permit being easily carried by the meter reader.
4. It should not have any sharp corners or projections which will tend to cause unnecessary wear of clothing.
5. It should provide a positive lock to guard against unauthorized removal or substitution of sheets.
6. It should provide proper protection against damaged or torn sheets.
7. It should provide maximum speed for posting service orders and changing of sheets.
8. It should provide maximum convenience and speed of billing.
9. It should permit of a narrow binding margin on the sheet and a flat opening in order to reduce the wear and tear on the sheets.

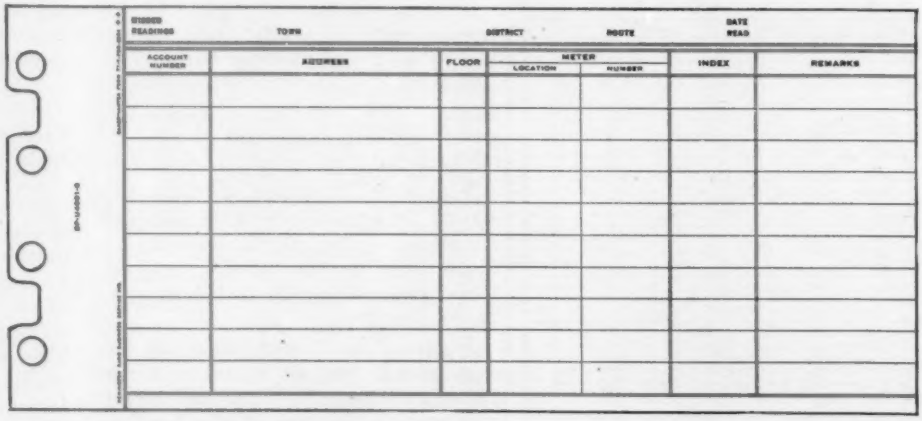


Fig. 4. This form is used for recording skipped meter reading when single service is involved.

Quality and Weight of Paper to be Used for Meter Reading Sheets

In determining the proper quality and weight of paper it must be remembered that meter reading sheets serve for a period of from one to five years; that they are subjected to all kinds and conditions of weather

and that they are used in cellars, attics and under many other adverse conditions.

It has been found that papers that are too heavy or stiff are subject to more damage and mutilation from the type of handling that is given meter reading sheets than papers that are lighter in weight but sufficiently tough to stand up under hard usage. It is therefore recommended that 20 pound substance with not less than a 60% rag content be used because paper of this kind provides a degree of toughness as well as flexibility that makes it the most satisfactory and durable paper stock for this purpose.

There has been considerable discussion concerning the advisability of indicating rates and classes of service by the use of varied colors of meter reading sheets. The use of this method has gradually diminished until there are very few companies using it. It was believed that this method would speed up billing and reduce errors, but actual tests have proved that this did not prove to be the case. The variety of colors and sometimes changes in the forms increased the cost considerably.

Proper Method of Computing Binder Costs

The cost of meter reading binders should not be computed on the basis of the price per binder, but the cost per year of use and the increased efficiency of meter reading, billing and posting of changes. On this basis a more expensive binder is frequently the lowest cost and represents the best investment.

Various kinds of materials have been used but most of them present certain specific objections. Canvas covers absorb moisture and accumulate a great deal of dirt. This soils the meter reader's hands which in turn causes soiling of the meter reading sheets. The same objections exist in connection with the work done on the binders in the office and they are very unsanitary. It has also been found that unless the canvas which is used is an exceptionally high grade quality that it soon becomes torn and frayed.

Aluminum covers are frequently used because of the supposed durability. It has been found however that these covers not only bend but frequently become nicked which results in sharp edges and projections which not only tear the clothing, but also scratch and mar the surface of desks, tables or counters on which they may be used for either posting or reference work. Another outstanding objection to aluminum is the fact that in cold climates it becomes very cold and cannot be handled with bare hands.

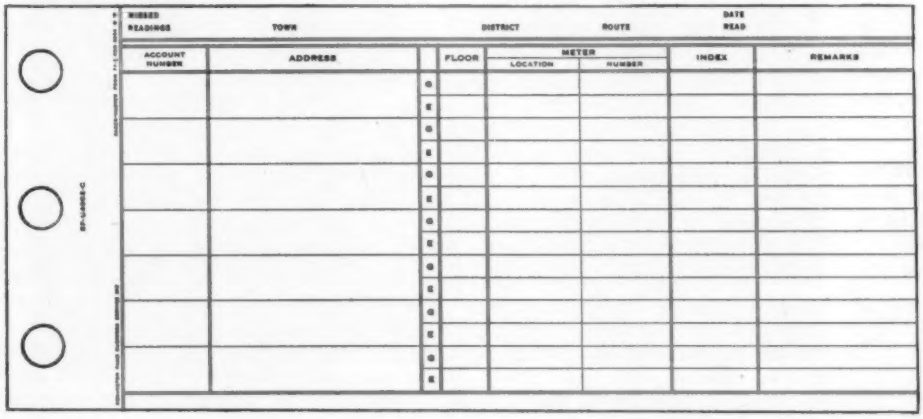


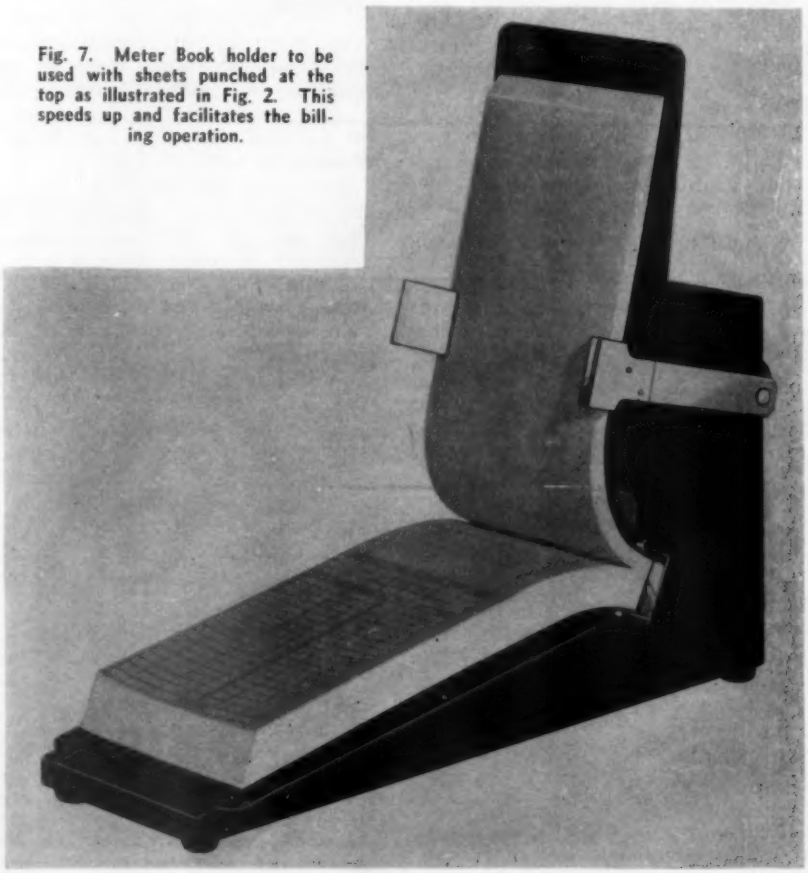
Fig. 5. This form is used for recording skipped meter readings when combination service is involved.

Fibre covers are very extensively used but these absorb moisture which causes them to warp and requires the replacement of a large percentage of the binders for this reason.

The most satisfactory binder covers that have been found are made of bakelite with a canvas base. These binders are absolutely impervious to either temperature or moisture and postively will not chip, crack, warp or break. Because of the highly

(Continued on page 48)

Fig. 7. Meter Book holder to be used with sheets punched at the top as illustrated in Fig. 2. This speeds up and facilitates the billing operation.



A "Free Gas" Promotion*

By H. W. Edmund

Coast Counties Gas and Electric Company

UTILITIES have for many years made use of various applications of the word "Free" as a sales stimulative. All are familiar with the "Free Rides" used by the street car companies and "Free Electricity" as campaigned by our electric friends. However, it is strong medicine and should be used only on systems having reserve strength in the form of gas supply and ample distribution facilities.

A most successful "Free Gas" campaign was conducted by the Coast Counties Gas and Electric Co. during the early months of 1935. In order to familiarize you with the "patient" in this instance, let us take a look at some of the general characteristics of the company. First, it is a small organization, serving a widely scattered territory. It has, in round numbers, 18,000 domestic meters in districts populated by about 75,000 people. Average consumption per consumer is low and indicated at the first of 1935 a heating load saturation of about 17 per cent. Our plans call for the increase of this to 50 per cent before the year ends, and to reach 60 per cent by 1938.

Our rates have been reduced several times and are very fair for 1150 B.t.u. natural gas. The G-5 rate which now applies to all domestic use is:

First	400 c.f. or less per meter per month	$ 1.15	
	500 c.f. per meter per month	1.25	
Next	2500 c.f. per meter per month	0.16	per 100 c.f.
Next	7000 c.f. per meter per month	0.075	per 100 c.f.
All over	10,000 c.f. per meter per month	0.05	per 100 c.f.

We have an adequate distribution system with very few poor pressure areas and an ideal source of gas supply.

With this diagnosis in mind, the following "Free Gas" prescription was presented to our managers and salesmen:

"In order to encourage our customers to make the most complete use of our gas service, to obtain the lowest net rate and have a trial period during which they may have an actual test of an appliance without paying additional for gas, we offer the following:

"For the two months period commencing with the January billing (the date the meter is read in January) domestic and commercial firm gas consumers will be given unlimited use of gas for a monthly charge not to exceed the amount of the bills paid by them in January."

The reaction to "Free Gas" by our employees and our consumers was instant and favorable. We gave it wide newspaper publicity and tied in our merchandising and dealer cooperative efforts. The net results will be reflected throughout this year and we hope many years to come. I have prepared the following figures which show the acceptance of the plan by our customers:

48.5 per cent of the consumers availed themselves of "Free Gas." 29,171 M c.f. or 19 per cent of the total gas sales were "Free Gas." $36,972 or 21.8 per cent of total gas paid for was the retail value of "Free Gas."

Tables No. 1 and No. 2 show the effects of the "Free Gas" offer in further detail.

Advertising

Our publicity and advertising was carried on principally through the newspapers. The first part of the campaign was given over primarily to the details and operation of the "Free Gas" offer, in order that our consumers might be thoroughly familiar with the plan. The latter part of the campaign we concentrated more attention on merchandise, and the advantages of purchasing during the "Free Gas" Campaign, with a small box or paragraph briefly outlining the offer. During the campaign a total of approximately 19,500 inches were used, with an average of 390 inches in the weekly papers and 11,280 in the daily papers.

Reader interest was greater than in any other event sponsored by this company since the advent of natural gas in 1930, and the matter of "Free Gas" was the topic of general conversation in all types of gatherings throughout the period of the campaign.

The newspapers were generous with news stories on this event, as it was one of interest to the majority of their readers.

Each bill sent out was stamped to indicate the amount of the bill had the "Free Gas" offer not been in use, proving to be an exceptionally effective method of calling their attention to the low cost of gas in the higher blocks, as well as the actual amount of direct saving to them because of the "Free Gas" offer.

Merchandising

Our direct efforts in merchandising resulted in the sale of 187 heating units which included 16 central plants and 83 floor furnaces; 53 circulators; 26 radiantfires and 9 conversion burners. The balance of ap-

(*Continued on page 41*)

Table No. 2

	Free Gas	Total Loss Free Gas	Variation from Theoretical Sales Gain	Variation from Theoretical Sales Loss
December ..	...	...	...	...
January ...	...	69,299	...	...
February ...	12,545	63,931	620	...
March	16,625	60,061	...	12,626
April	...	62,924	6,972	...
May	...	46,863	4,850	...
June	...	...	2,855	...
July	...	...	1,946	...
August	...	...	3,676	...
			20,919	12,626

Cost to Date: 29,171 M c.f. Wholesale Cost
184 M c.f. Retail Loss

TABLE NO. 1. COAST COUNTIES GAS AND ELECTRIC COMPANY—FIRM GAS SALES

	1933	1934	Increase	%	Theoretical Sales	Increase	%
December	50,730	55,695	4,965	10			
	1934	1935					
January	64,337	69,299	4,962	7.7			
February	57,556	76,477	18,921	33	63,311	5,755	10
March	53,955	76,687	22,732	42.4	72,687	18,884	35
April	40,545	62,924	22,379	55	55,952	15,407	38
May	35,011	46,863	11,852	34	42,013	7,002	20
June	36,505	41,550	5,045	13.8	38,695	2,190	6
July	34,902	38,593	3,691	10.6	36,647	1,745	5
August	34,086	39,807	5,721	16.8	36,131	2,045	6

* *Presented at the Pacific Coast Gas Association Convention, Sept. 17, 1935*

Sidewalk pit with permanent pressure gauge box installation. Sidewalk carried to curbing improves appearance and facilitates maintenance and operation.

By

ERICK LARSON

Regulator Structures

PART II

Location of Pits and Regulator Houses

A PRIMARY factor in the selection of pit locations is safety; and this includes safety to consumers, workmen and the public.

Safety to consumers requires that the pits be located where water conditions will not affect operations by adding weight on the diaphragms and thus cause the building up of pressure. Consumers' safety is also guarded by providing pit locations where the conditions are convenient and safe for employees so that they may concentrate their full attention upon the operation and maintenance of the regulators. Safety of workmen is materially increased by locating pits in parkways or sidewalks thus avoiding the hazards incident to vehicular traffic. Locations where the workman's assistant may stand outside without continually guarding his own safety permits greater attention to the work in progress inside the pit; to the handing in of material and supplies as needed and to the careful observation of general safety rules.

In cities pedestrians have become accustomed to the existence of manholes. In recent years their curiosity to observe the interior, which at one time resulted in many accidents has materially decreased. This fact now allows the location of pits under sidewalks. In the selection of a location, however, the habits of pedestrians in the particular locality are a factor. A smoker is more apt to discard a lighted cigarette toward the curb than toward the inside of a sidewalk, and from that viewpoint the center or inside of the sidewalk provides a preferable location. In shopping or similar sections most of the pedestrian traffic is close to the buildings and, therefore, a location near the center or toward the curb interferes least with pedestrians. In residential sections there is less likelihood of cigarettes being thrown toward the curb, and in addition most traffic appears to be in the center of

Light weight cast iron frame for sidewalks. Ventilating holes numerous but insufficient for complete ventilation. Concrete sidewalk placed between property line and curbing although no sidewalk existed at the time of installation.

the sidewalk. This, combined with the usual location of cement sidewalks, trees, bushes, etc., makes the preferable location between the sidewalk and the curb. The decided disadvantage of this practice where snow is common is that during storms, snow is thrown or heaped between the sidewalk and curb whereas the sidewalk is usually cleared.

A common reason for locating pits under sidewalks is that lighter frames and covers can be used as there is less load to sustain. If a sufficient number of such pits are constructed to permit lighter frames to be carried in stock there will be a saving in cost; but ordinarily one standard frame is selected and used at all locations. Considerations of safety, particularly where trucks may go onto sidewalks while unloading, frequently make the installation of the heavy frames a desirable feature.

When frames are located in sidewalk areas, safety is enhanced by the elimination of heavy traffic over the cover since such traffic may result in the cover becoming loosened or jumping out of place. An advantage of heavy covers in sidewalks is the difficulty of removing them. This prevents children or others from tampering with or lifting the covers.

Economy of Construction

The location of a pit may considerably affect the cost of construction. The variable factors entering into the cost are largely local, such as the sub-surface structures of other utilities. Under city conditions numerous sub-surface structures may be located by contacting the various utilities operating such structures. Some of the public utilities, particularly water, sanitary sewers and drainage systems are often operated by the political division. Such interferences as rock, if suspected, may often be determined by consulting other utilities or occupants of adjacent buildings. More difficult to determine than most other conditions is the nature of filled-in land. This factor is particularly important as settlement of heavy pits has been the cause of not only high construction but also, of high maintenance cost. In residential sections the roots of trees may not only interfere with and increase the cost of constructing pits but the trees themselves may be affected. Therefore, the types of roots on trees growing in the vicinity should be determined and the location selected to avoid damaging such roots when possible. Many reasons have already been cited for the avoidance of paved sections where possible.

Sidewalk pits frequently permit the running of the ventilating ducts straight upward, eliminating bends except the one directly outside the pit wall. This may result in a slight economy of construction but an important factor is the improvement of ventilation through the elimination of bends. Under parkways or sidewalks there is ordinarily a minimum of excavation as the top of the roof may be placed closer or immediately at the surface. The avoidance of other sub-surface structures also tends to decrease the quantity of excavation.

Convenience

When selecting pit locations the convenience of the public, not only during construction but during operation, is an important consideration. In general the public will be inconvenienced by any interference with traffic, either vehicular or pedestrian. As it is seldom possible to select a location where there will be no interference, effort should be made to determine the location which will offer the least. Often pits have been located on narrow side streets or alleys instead of in wide thoroughfares with the idea that there will be less interference on the side streets, but such a situation should be carefully studied to make sure that the narrower width of the side street will not offset the advantage of less traffic. The traffic in a narrow street is often completely blocked by the opening of a manhole.

While convenience of the public has preference over that of workmen, consideration should be given to the advantages that workmen's convenience adds to safety and quality of workmanship.

Legal Phases of Location

Legal objections to preferable locations often result in limiting the selection of a location to the least desirable restricted areas. Some political divisions have established ordinances designating the sections of highways in which utilities must locate their structures. Where such ordinances are in force, it is seldom that the sidewalk or parkway areas are allotted to any utility. Some cities charge an added fee for pits located under highways.

The selection of sidewalk areas may involve legal entanglements, as title to the land in sidewalk areas in many locations appears to be more doubtful than that in the traffic section. Even where the title to the land between curbs, or the purposes for which it may be used, are clear there often appears to be doubt as to the legal right of a political division to permit the use of sidewalk areas for sub-surface structures. In other instances the nature of the phrasing in a franchise has led to legal recommendations against the use of sidewalks. Where a street is under the jurisdiction of a political division, because of its having been used for more than a prescribed number of years as a highway, the question has often been raised as to the right of public officials designating sidewalks. In some instances the section between curbs may be used only by public utilities and even then it has been contended that public jurisdiction extends only to the surface of the roadway. The designing gas engineer must be familiar with local rulings and decisions.

Ground Water

Ground water will affect selection of a location for a sub-surface structure. Often the existence of ground water is taken from records or the memory of men who have installed mains in the vicinity; and after excavation has commenced, it is discovered that such previous work did not reach a depth where such water was a factor. Where there is the least doubt as to the existence of ground water, boring tests should be made and records obtained to indicate the rise and fall of such ground water with the seasons. Full reliance on records is often costly especially in hilly sections where springs are frequent.

While not frequently met, the previous locations of brooks and streams which have been diverted or carried through ducts and the original locations filled in, may offer particular difficulties to the construction of sub-surface structures. Water may not exist in abandoned stream beds to an extent sufficient to offer difficulties, but the fill may.

Surface Drainage

While regulators may be constructed to prevent water which enters a pit from interfering with proper consumer service, operating costs may be decreased by selecting locations for manholes where surface water will not seep into the pit. From the standpoint of safety the preferable location for a manhole in the traffic section of a road is near the curbing, but the preferable place from the standpoint of avoiding water is in the higher sections. The high sections may not be available in ordinary width roads and it is, therefore, desirable when possible to locate the manhole in the sidewalk,

even though the greater part of the pit may be located underneath the road. When the manhole must be situated in the gutter, it is often possible to select a location along a street where the flow of water is a minimum. This would be as far as possible from catch basins. Placing the manhole sufficiently near the road center to permit traffic to pass on both sides of it minimizes trouble from surface waters and provides as safe a location as possible under the conditions.

Miscellaneous Interferences

Sub-surface structures under the jurisdiction of others than the gas utility are often the most difficult of all interferences to avoid. A pit will necessarily require a considerable percentage of a roadway and often can not be confined to the section allocated to gas mains. Under such conditions a location is usually selected after ascertaining the cost of moving other interfering structures.

Avoiding driveways, which are usually evident, is advantageous. However, where buildings are constructed on the property line the various means of entrance or locations of concentrated traffic are not usually as evident as driveways, but nevertheless they should be avoided as far as possible. Such locations may include the main entrance, freight entrances, cellar-ways, sidewalk elevators, chutes for such purposes as coal, or any other locations where cars or trucks would logically stop frequently or of necessity proceed slowly previous to discharging passengers.

Safety

In the location of regulator houses greater consideration may be given to safety than is possible with pits, as there are fewer interferences. Safety of workmen is enhanced by locating a house as far from pedestrian traffic as possible so as to make it difficult for passing people to converse with workmen and to reduce the effect on workmen of noises and incidents occurring on the highway. If possible the regulator house should be located so that the conveyance used by the workmen may be parked on private property near the house entrance. Helpers may then secure material or make repairs to regulator parts on the truck and at the same time be in a position to observe and communicate with the workmen inside the structure.

Safety of both workmen and public is enhanced by locating a regulator house as far as possible from existing structures or any source of flame or spark. Sources of sparks may be any type of electrical apparatus, exhaust pipes from internal combustion engines, smoke stacks, railroad tracks, timberland or high grass which may become ignited, locations where cigarettes or other lighted objects may be thrown from windows above or alongside, etc. The danger from such sources of ignition would exist not only when a large leak occurred inside of the house but would also be a potential source of ignition for any gas escaping from vent pipes.

Economy

At city gate stations or similar locations and in suburban territory the cost of land is seldom a factor in selecting a house location as acreage may be secured at reasonable rates. Occasionally land owned by a gas utility for some time previous to the installation of regulators is used, although it may not be immediately adjacent to the transmission lines. Such a practice is not always economical as duplicate lines are often necessary in the highway and also future changes and additional laterals may be more costly to install than initial additional investment for new land. Locating regulators in pits on roadways is usually more costly than installing in a special or existing building. Regardless of slightly added initial costs, particularly when the land is in business areas a roadway location is preferable, as buildings are frequently renovated and exist for few years compared with gas systems.

Public Convenience

Public convenience may not appear to be affected by regulator house location as the effects are mostly indirect. Any regulator house location which would be inaccessible during floods, heavy rains, snow, impassable roads, bridges temporarily opened or impassable, etc., would interfere with maintenance or adjustment of the regulators and therefore, may be the cause of poor service. The preferable location of any regulator is as near the load as possible. Locations selected merely to have the regulator or meter station at edge of franchise limits often increase considerably the distance to be traveled by service men, or are situated inconveniently for access by automobiles and thus may be the cause of poor service even though such poor service may be infrequent and of short duration.

The convenience of utility records should be subsidiary to service. Remote locations are often selected from a desire to have all distribution equipment within franchise limits either low or medium pressure. The slight inconveniences to a utility such as adding individual meter readings to a district meter or personal dislikes of mixed systems, which may occur due to some high pressure distribution, should be incidental to facilitating the rendering of excellent service.

Miscellaneous Considerations

Legal considerations too numerous to list may affect particular locations but are seldom general. A common legal phase to be considered is that of zoning ordinances, which designate the type, use and character of structures which may be erected. Even in rural locations it is often necessary to secure building permits. The attitude of abutting property owners is an important factor in structure or pit location particularly as it relates to public relations. Even though not legally required abutting owners should be consulted and their permission secured for the structure location. Often such interviews will reveal important information. When permits are not legally required it is also desirable to secure permission from the constituted authorities. It is preferable to locate regulator housing to maintain the symmetry of arrangement and design of the adjacent buildings. A location selected to provide driveways, entrances and landscaping in harmony with the remainder of surrounding territory seldom causes any objection. Ground water, surface drainage and surface grade seldom present difficulties to regulator house construction but are to be considered particularly where cellars are installed.

(Continued in February issue)

False Economy

Window box, cellar, back porch and all other makeshift methods of refrigeration are wasteful substitutes for automatic gas refrigeration. This is borne out by United States Weather Bureau statistics, which show that there are only 15 days per year, on the average, during which outdoor temperatures can be depended upon for proper food preservation. During the other 350 days, it is either too warm or too cold.—*Home Service News. Peoples Power Co., Moline, Ill.*

PAINTED REALISM ADDS PUNCH to Window Displays

By Stuart Bratesman
Manager, Display Dept.
Boston Consolidated Gas Co.

POSTER illustrations that possess a strong realistic technique add a lot of effectiveness to window displays. People like to see art work completely finished up. Regardless of what modern designers like to believe, the realistic type of illustration is the one generally accepted by the average person. Not that modern design hasn't its place in gas window display work; but the fact remains that an object reproduced before the reader, exactly as he visualizes it to be, is invariably more appealing, and incidentally more apt to arrest his attention.

Two illustrations of what the writer means by realism in window display art work appear with these lines. They speak for themselves. The luscious cake, reproduced in full colors, attracted more attention than any two other types of display illustration.

Displays of this kind usually go into a bit extra production cost, due to the time involved in painting the huge panel. These areas are the size of murals. Compare them with the actual appliance sizes shown in these two photographs. The effect, however, is worth all of the added work and expense, because they certainly sell their little stories of gas cooking and refrigeration better than a thousand words.

Just a word about the technical detail demanded in reproducing these two displays. It might prove of interest to those gas companies desiring to use some of these realistic type backgrounds in future display material. Both of these advertisements were constructed and painted from scale color sketches, prepared in detail before a piece of lumber was cut for the finished display. In art work as complicated as this, a projector is used to enlarge the original drawings to the final huge size. The original sketches fit into this projector and the image is thrown on the large area and traced in detail. This spotting gives the artist a definite form to paint in the complete colors. Without the projector, it would take days to scale up art work of this type. Each line would have to be carefully scaled by rule.

Another thought; where it is possible, permanent colors should be used in these mural areas, for lasting qualities. In most cases, displays of this type are counted on to last quite a while, because of the expense involved in preparation. It would be rather foolish to paint them in colors that would fade to grays in a few weeks. Substitution of certain known permanent oil paints for dyes in poster colors will make them lasting and brilliant. Their giant size prohibits using entire oil colors, as they are quite expensive. The combination usually does the trick.

(Continued on page 48)

How to Avoid Liability for Damages resulting from Gas Explosions and Gas Leaks

By Leo T. Parker
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IT IS well known that the distribution of gas is accomplished by possible dangerous consequences. For that reason it is well established law that a degree of care, commensurate with the danger involved, is required of a seller of gas to avoid injury and damage. In case of failure to exercise such care and if injury results, either to person or property, then the gas company, or the municipality which sells the gas, is liable in damages.

A very thorough review of recently decided higher Court cases discloses that the law is established that a gas company is liable in damages for injuries caused by an explosion of escaping gas, providing the testimony indicates that the explosion resulted from negligence or lack of ordinary care of the company's employes. However, if the testimony indicates that the gas company employes exercised care to stop a leak or shut off gas, the company is not liable. Moreover, the company may avoid all liability where it is shown that a person who tampered with the connections had caused the leak, or if a landlord had failed to use care to know that the gas connections were tight and safe.

For instance, in Wright v. Southern Gas Co., 283 Pac. 824, it was disclosed that a tenant moved out of a building and ordered the gas company to turn off the gas. In turning off the gas, the company, as is customary, turned off the stopcock controlling the passageway for gas into the meter, and then sealed and locked it. The seal was not very substantial and a new tenant, after renting the building, found the seal broken. Subsequently an explosion occurred, resulting from escaped gas, seriously injuring the new tenant who sued both the gas company and the landlord for damages.

The higher court held the landlord personally liable, relieving the gas company from liability, saying:

"Some one tampered with the lock and seal and turned the stopcock, so that the gas would again flow through the meter. . . . . It (testimony) likewise shows that the defendant (property owner) had control of the flat in question . . . . Upon this testimony, the jury was warranted in drawing the inference that the defendant (landlord) had tampered with the lock and seal on the gas meter, and had opened the gascock in the living room, and subsequently failed to close the same."

Therefore, it is quite apparent that a gas company may avoid liability for injuries caused by an explosion of gas, if the testimony indicates that its employes did not negligently cause the leak or did not negligently fail to repair it. Also, a property owner is personally liable for injuries caused by exploding gas which escapes as a result of his negligence, and the gas company is not liable if the property owner knows that gas is escaping and fails to promptly notify the gas company.

Gas Company Inspects Appliances

If a gas company assumes responsibility to inspect and control service pipes, gas fixtures and appliances the gas company is liable in damages for injury to person or property which injury results from negligence of its employes to inspect and remedy a defect.

It is ordinarily true that a gas company, which neither owns nor controls the pipes or appliances in which it merely conveys gas, is not obliged to inspect the same, and will not be liable for injuries sustained by reason of defective pipes or appliances. However, when control, or even joint control, of the pipes or appliances is reserved and exercised, the company will be liable for a lack of due care. The latest higher Court case involving this point of the law is Sutcliffe v. Fort Dodge Gas Co., 257 N. W. 406.

The facts of this case are that a gas meter was located a few feet from a wall through which the gas pipe entered the basement. Coupled to the gas meter was a drip pipe. The purpose of the drip pipe was to permit drainage when artificial gas was used, before installation of natural gas. It had served no purpose for a period of approximately two and one-half years, because the gas company changed from the use of artificial gas to the use of natural gas.

One day a violent explosion occurred in the building resulting from gas escaping from the old drip pipe which had in some manner broken its fastenings in the wall. The explosion resulted in serious injuries to the occupants of the building, who sued the gas company to recover damages.

The counsel for the gas company argued that the latter was not liable because it did not build, furnish or install the drip pipe. However, the injured persons contended that the gas company was liable because the company employes had inspected at various times and always had control of all of the gas appliances, including the drip pipe which leaked and caused the explosion. Also, testimony was introduced proving that once every month a meter reader, who was an employe of the gas company, called at the building and went into the basement and inspected the gas appliances while he read the meter.

In view of the testimony, which proved that the gas company employes inspected these appliances from time to time, the higher Court held the gas company liable, and said:

"Although the appellant (gas company) may not have owned the gas appliances in question, it at least had full control over them. In that event the appellant (gas company) would be liable for the explosion."

When Notification Is Required

It is also well settled law that a gas company is liable for any injury to persons or damage to real property, if such injury or damage results from failure of the gas company to notify its consumers of known dangers of which the consumers do not know and could not under ordinary circumstances be expected to know. However, the company is not required, in order to avoid liability, to notify consumers of any danger which the average prudent and intelligent gas user would ordinarily be expected to know.

For example, in Cardogan v. Boston Consolidated Gas Co., 195 N. E. 772, it was disclosed that a property owner installed in his house a water heater. The heater was cylindrical in shape and contained a metal coil through which the water ran and upon which the gas flame impinged to heat the water. There was an opening at the top of this heater to which a flue could be attached to connect with a chimney, but none of the gas appliances were in fact connected with the chimney. The gas furnished by the gas company contained between twenty-two and twenty-nine per cent of carbon monoxide.

One day the heater was lighted by the property owner and permitted to burn for several hours. As a result of carbon monoxide escaping, three persons were overcome by the fumes. Suit was filed against the gas company to recover damages on the grounds that when the hot flame impinged upon the cooler coil it was chilled so as to cause part of the monoxide to escape unconsumed, that the gas company was negligent in failing to notify the property owner of this danger, and also that it did not inform the users that the gas contained carbon monoxide. However, the higher Court refused to hold the gas company liable, and said:

"We think that at this late date the defendant (gas company) could reasonably assume that a householder in Boston was sufficiently familiar with the kind of illuminating gas used in this part of the country to know that it was dangerous to health, that it must be consumed in such manner as to avoid the accumulation in the house of toxic gases. . . . Where the company supplying the gas has undertaken no responsibility with respect to the appliances within the house or the method of using the gas in them. . . . We think that there is no duty on its part to warn the consumer with whom it deals, and so no duty to warn third persons, of the dangers attendant upon the burning of gas."

What Is Contributory Negligence?

Therefore, in view of the above late higher Court decision, it is obvious that a person who is injured as a result of his own negligence is not entitled to recover damages. Just what circumstances of an injury may be held to be contributory negligence sometimes is a matter for considerable testimony. However, the Courts agree that any person is chargeable with contributory negligence who does not use that degree of care which would have been used under the identical circumstances by the average and prudent person.

Contrary to the opinion of the majority of persons it is not always, although it is generally, held to be contributory negligence on the part of a property owner who uses a match or lighted candle when endeavoring to discover a gas leak, or who enters a basement with a flame. In such cases the question of contributory negligence is to be determined by a consideration of all the circumstances, such as to the extent of the leak, the size of the enclosure where located, and the length of time the leak has existed.

On the other hand, it is established law that if a property owner has notice that gas is present in *large* quantities, it is *gross* negligence for him to apply a lighted match to it, and the gas company is relieved from liability. However, if the quantity is small, or if there is nothing to cause a man of ordinary prudence to believe that there is danger of an explosion, it is not necessarily negligence to light a match. Notwithstanding these facts a gas company is not liable for an injury to a consumer, where it is shown that the explosion may have been avoided had the consumer exercised ordinary care.

For instance, in Newland v. City of Winfield, 289 Pac. 402, it was disclosed that a municipality supplies gas to its citizens. A new tenant requested the city to install a gas meter and connect the newly rented house with the gas mains. No test of the pipes in the house was made by the city, because the consumer had not connected his appliances. The tenant turned on the gas without notice to the city. When he smelled an odor of gas he investigated. The tenant used a match and an explosion occurred. The tenant sued the city for the injuries sustained on the contention that the city was negligent in failing to test the lines. However, it is interesting to observe that the Court held the city not liable, saying:

"If it was the custom of the city to make an inspection before turning on the gas, the occupants knew that the city had stopped at the installation and test of the meter, and that no inspection of the pipes in the house had been made. . . . When they turned on the gas and discovered the odor of it, it was the proper time to shut it off and call a plumber or employe of the city to find and mend the leaking pipes."

In still another leading case, Plonk v. Jessop, 178 Pa. 77, a person, who had smelled gas, lighted a match and searched along the pipes to a point where an explosion took place. This Court stated the following important law:

"The knowledge of the explosive character of gas certainly may be presumed to be general among persons who have it in their houses, and plaintiff (consumer) admitted such knowledge. But how far a smell of gas indicates a leak that may safely be searched for with a match or candle, and at what point it means danger of explosion in so doing, is a question requiring judgment and some experience."

Damage to Trees

Considerable controversy has arisen from time to time whether a property owner may sue and recover damages for trees in the street or sidewalk which were killed or injured by negligence of gas company employes.

Therefore, it is important to know that various Courts have held that a property owner owns no part of the street or sidewalk, but he has by virtue of proximity all special and peculiar rights which are not in conflict with the general right of the public. One of these rights is the enjoyment of the shade and beauty of trees planted in the sidewalk in front of his property. While this right is subordinate to the right of the municipality to make any change for the benefit of the general public, it entitles the abutting owner to protection against negligent or willful destruction of these trees at the hands of third parties, such as gas company employes.

On the other hand, under no circumstances is a gas company liable for destruction of or injury to trees unless its franchise specifies that it shall be liable, or unless the testimony proves that the gas company employes negligently caused the destruction or injury.

(Continued on page 48)

Leadership

THE BARTLETT HAYWARD COMPANY leads in engineering, fabricating and erecting gas plants.

Pioneering such outstanding advances as the Waterless Gas Holder and leading in the design of gas works apparatus . . . Generators, Condensers, Scrubbers, Purifiers, By-Product Plants . . . they have enabled Gas Companies to lower their manufacturing costs and to increase their revenue.

Backed by a wealth of experience gained during its century of existence, the Bartlett Hayward organization is eminently qualified to assume entire responsibility whether it is designing and constructing the largest plants or furnishing individual units.

Undivided responsibility gives the best protection from future trouble and guarantees the greatest economy in design and construction. Bartlett Hayward engineers will welcome the opportunity for a consultation with you on any project you may be contemplating.

THE BARTLETT HAYWARD COMPANY

BALTIMORE, MARYLAND

How the Present "Mystery Chef" Radio Series Started

As Quoted from the December 25, 1935 Broadcast

NOW, let me tell you a rather thrilling little story of how this whole series of broadcasts was brought about and how an industry was brought together through the actions of one little boy, 10 years of age. Think of how *your* life may affect others without your knowing that what you say or do is having any effect on this world. Something *you* do or say today may affect the lives of homes . . . not only in America but in lands beyond the seas.

Here is the story of how little Bruce Starzenski one day, more than a year ago, unknowingly brought about this series of broadcasts. On October 31, 1934, I broadcast the recipe for making an exceedingly delicious orange cream layer cake. Before giving the recipe I emphasized the fact that anyone could make this cake with complete and outstanding success. I said: "Anyone . . . anyone . . . man, woman or child . . . yes, any child of 10 years of age can make this delicious cake with absolute success." Then I read a letter from a lady in Attleboro, Massachusetts . . . one of tens of thousands of letters like it that I have received. In the letter Mrs. E. M. said in part "Last December 31st was my birthday and my daughter, as a treat to me, made a birthday cake. She chose a layer cake with caramel filling and frosting. This was a cake I had never attempted, so she had not seen it made before . . . neither the filling nor the frosting. I did not deter her, though, having considerable misgiving about the result.

"The result was a triumph, so much so that when a friend came to take us away for supper, we took the cake along and all at the party were loud in their praise of it. I think they had a sneaking suspicion that I had helped her to make it, but I did nothing at all. She just took your book and followed the directions and the result was perfect. My daughter is 9 years old . . . yes, nine . . . *not* nineteen . . . so you see your recipes are so easy that even a child can follow them. I am truly sorry for all the people who do not have your book." And the letter is signed Mrs. (I'll only give the initials) Mrs. E. M.

Now, this little boy was home that morning . . . he had been ill and was being kept home from school that winter. He heard that broadcast in which I had also told how nearly all of the world's greatest men have, and do today make cooking one of their hobbies. If he had listened without acting, this series of broadcasts would not have started, and you would not be listening to my Xmas message this morning. *But* this little boy not only listened . . . he acted upon my advice. He took down the recipe . . . he believed that what I said was so "that any child of 10 could make the cake with complete success." He was 10 years old at that time. He not only wrote down the recipe but he went into the kitchen and without any previous knowledge of cooking he made a perfectly delicious cake. Then he wrote in for the little book I was giving away at that time . . . it arrived and then this little boy made various kinds of cakes and made delicious pies with perfect pastry . . . and by the way now he is going ahead to prepare an entire dinner . . . and who knows but what he may some day carry on the work I am doing now.

Well, let me finish the story. This little boy's father is an officer of a well-known Gas Company. I met him and he told me the story of his son. That conversation led to others with officials of other gas companies until on December 4, 1935, one year and one month later, this series of broadcasts started. All directly traceable to the fact that little Bruce Starzenski not only listened, but acted upon what he heard.

—*The Mystery Chef.*

New And Revised Clauses Incorporated In Eighth Edition Of Gas Range Standards

REVISED American Standard Approval Requirments for Gas Ranges, Z21.1-1935, adopted by the American Gas Association Approval Requirements Committee last spring to go into effect on and after January 1, 1936, were approved last month as American Standard by the American Standards Association. As a result these modernized requirements have now been printed and distributed to all gas range manufacturing companies. Approval testing in accordance therewith will be begun by both the Cleveland and Los Angeles Testing Laboratories of the Association within a few weeks.

The new set of standards supersedes that of the same title which has been in effect since June 1, 1934, and constitutes the eighth edition of the gas range requirements which have been applied by the Laboratories since the American Gas Association appliance approval program was inaugurated ten years ago. The new standards have been considerably extended and revised over those they replace, including the addition of 19 new clauses and the revision of 74 others in some particular. The most significant changes involve: The addition of several important requirements covering appliance strength and rigidity under various types of loads applied at various points simulating service conditions; the inclusion of clauses specifying minimum broiler temperatures and heating speeds; increases in the stringency of top burner lighter performance stipulations; and a more or less extensive correlation of the standards covering gas range accessories with the corresponding American Standard listing requirements for such devices.

In all some 529 stipulations are laid down, all of which must be met in future tests by A.G.A. approved gas range models. This is a greater number of clauses than has ever before been enforced. At the present time in the neigborhood of 600 different new models of gas ranges are approved annually by the Testing Laboratories, with the result that upwards of 93 per cent of all the ranges sold per year in the United States and Canada bear the familiar A. G. A. Laboratory Seal of Approval. Remarkable improvements in general gas range design and performance have taken place in the past few years, this advancement undoubtedly being due in part to the American Gas Association approval plan. The new and up-to-date American Standards just published should aid significantly in urging even further this progressive trend.

Courtesy Ohio Fuel Gas Co.

Domestic Gas Utilization

Water Heating Division—Part IX

Hot Water—What For?

By
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TO argue that initial price and particularly operating costs for automatic water heating are not consequential factors in the mind of most purchasers, is both irrational and not in accord with market facts. Sober purchasers, however, in buying any goods or services weigh the costs in terms of the performance benefits. Stimulating to the proper crescendo of intensity the prospect's appreciation of these values to them, is to sell. And still the old saying is that "everything is good at some price." Can the prospect better employ available funds for any other purposes representing greater values than water heating service? The problem to the customer is one of choice, only the bare necessities of food, shelter and clothing having precedence. Hot water selling starts then in the plane just above the subsistence elements of living. That an abundance of hot water promotes cleanliness and bodily health as well as easing the household tasks, is generally admitted to be in the quasi-essential class. Surmounting this level are the luxury characteristics having to do with human comfort and convenience, the "pleasure of the splash" and also the adjunct to personal beauty transcending all of which is that uncomparable psychological tonic of that "spic-and-span, fresh out of the bath feeling." But the public in a manner of speaking *buys necessities* and are *sold luxuries*. Undeniably so-called civilization is activated less by logic than by emotion. The cue then to salesmen is to evaluate hot water costs in terms of our purchaseable commodities—yes, for logic's and education's sake—but further than this to emphasize, to laud, to preach, to declaim loud and vigorously the inestimable virtues, the supreme joys of the service. The combination of the appeal to the senses as well as to the mind, strikes a harmonious chord spelling volume business in capitals. Cultivate the value of having, the pleasure of owning, the appreciation of the benefits, the urge to enjoy—and "hand 'em a pen." Mayhaps this smacks of "sales madness" or reeks with "Barnum and Bailey" showmanship, but this has and can sell automatic water heaters. Have you the requisite background information with which to masterfully elaborate on modern hot water values and benefits?

First, let us classify the principal uses of hot water in the home as follows:

Bathing in tub or shower
Cleansing hands and face
Shaving
Shampooing
Washing fabrics
Domestic cleaning
Miscellaneous

Each of these will be discussed in the order above listed.

Baths

Baths of many sorts, are indulged in for many widely different purposes and with varying effects. Statement as to the approximate range of different temperature classes of baths will prove helpful. Dr. Edwin F. Bower in his book entitled "Bathing for Health" enumerates the following:

Cold Bath	32 to 65°F
Cool Bath	65 to 92°F
Warm Bath	92 to 98°F
Hot Bath	98 to 115°F
Torrid Bath	above 115°F

Advices are in substance, don't guess—know—use a specially designed, wood encased bath thermometer for accuracy and desired results.* Normal "blood heat" is 98.6°F whereas surface temperatures of the skin are but slightly less than this. Ponder how delicate is the ther-

* *Taylor Bros. Instrument Co. retail an excellent bath thermometer at $1.50.*

mostat in the human body wherein the range of human interior temperatures from 97 to 106°F marks dangerous extremes—small internal fluctuations cause marked changes in physical condition. Perspiration is nature's principal means of attempting to automatically regulate excess body temperatures in order to create an equilibrium with external surrounding conditions. Broadly speaking, the two chief purposes of bath are: 1. Cleanliness for cleanliness' sake with consequent tonic effect on general health; 2. For some specific reaction to the circulatory, muscular or nervous system or for the treatment of some specific disability.

The functioning of the skin encompasses the action of some *three to four million* sweat or perspiration glands exuding normally an average of nearly a quart of moisture daily and also some *two to three million* oil glands whose secretions envelope the skin surface filmlike, keeping the same water proof and flexible. The activity of these glands is conditioned by the existing weather. The complete clogging of these sweat and oil glands is positively fatal—mark the death of a child whose body was gilded with paint for a stage performance. Partial clogging of these skin glands retards bodily discharge to the extent pores are obstructed which in turn is related directly to the frequency and effectiveness of baths taken. Failure to bathe regularly retards sound bodily health by imposing an added burden on the kidneys and other organs. Any doctor will verify these truths and doubtless add that bathing facilitates natural digestive processes by relaxing nervous tensions. The average bather envisions the procedure as a more or less pleasurable routine to remove dirt because as some Dutchman once proclaimed "Cleanliness is next to godliness." The real purpose of a cleansing bath is to remove not alone dirt but dried skin, salts of perspiration bacteria, oil secretions, dead cells or anything diminishing normal glandular functioning. *Whether comprehended or not the result of a bath is better health temporarily with the natural conclusion being that regular bathing promotes permanent betterment of well-being.

A *Cleansing Bath* as the name implies, contemplates water hot enough to open the pores (say 102°F) and a bit of vigor with the soap, brush and wash cloth. Dirt and other foreign matter is loosened and dissolved more readily in a "piping hot soak." The ensuing physical as well as mental response is almost immediate. As one poetic soul puts it, "as the cocktail is to the dinner, so is the bath to the evening." The result is personal radiance and that indefinable sense of well-being—an exuberance of high spirits, "that-all's-well-with-the-world" feeling. And in the office, personal cleanliness subtly says "they (those young men) may seek you out and find you exciting—for other qualities—but something deep in them will refuse you as THE girl unless you impress them as being crispy, crystally clean. Cleanliness is a lovable trait—people trust it." Hot water in the true sense of the word doesn't cost, it pays.

The above bodily heat loss is at the rate of 412 Btu. per hr. What has this to do with baths? Precisely this—in the fore-going note that the last two items (expired air and skin-moisture evaporation) totaling 87.5% are concerned with heat withdrawal from the skin surface from which it can be deducted that anything tending to retard this escape of heat from the skin imposes the necessity of either increased bodily temperature or increased breathing or ingestion. Internal body temperature can not rise without ensuing sickness whereas ingestion and breathing in themselves hardly offer a practical means of reestablishing temperature normalcy. What then is the result of partially blocked pores? Excess perspiration must be generated for accelerated evaporation and also skin temperatures are elevated to create a sufficient temperature differential to permit the requisite heat transfer through the skin, either of which produces an uncomfortable sensation and carried to extremes results in ill health. Observe that the above tabulated heat loss is with the body at rest whereas exertion, physical activity or hot weather raises the heat loss requisite to the maintenance of constant body temperature.

For summertime relief the secretion of perspiration is the normal means of obtaining human relief, the evaporating of such moisture having a cooling effect on the skin due to the absorption into the atmosphere of the latent heat of vaporation. A current of air, such as from a breeze or a fan, accelerates this moisture evaporation as well as aiding in the other means of heat transfer. In the wintertime, of course, with perspiration at a minimum, and heat loss by radiation and conduction due to temperature differential at a maximum, extra clothing is needed to retain the skin temperature. In the summertime evaporation losses are at a maximum and other heat losses at a minimum with the moral "don't block the passageways—take a warm, cleansing bath."

A *Sedative Bath* is highly refreshing for that tired business man at the end of those nothing-was-right days and is frequently mustered into service by the adventure-craving wife to combat that "darned-if-I-set-foot-out-of-this-house-tonight" humor. Ten to fifteen minutes submerged in an "H_2O pick-up," followed by a catnap in bed before dinner, will revitalize the fagged gentleman and arouse enthusiasm for the entertainment of the evening. Gets the blood out of the grooves of the head and limbers up the arches. Up to the neck for twenty minutes in water slightly under body temperature, drowned in an attitude of motion suspended, blotting off of moisture with no brisk rubbing, no conversation, reading or worrying—the trials and tribulations of the day have shrunk into oblivion and no lullabies are needed to drift off into slumber. As a cure for insomnia a sedative bath puts an aspirin tablet or similar pill into the shade. Physiologically the process involves a readjustment of the circulatory system whereby the blood flow is concentrated in the body leaving the mind free of congestion. Nervous wrecks are induced under this treatment to sleep like hibernating bears.

A *Stimulating Bath* may be either very hot or very cold or a combination of the two temperature extremes. To knock sleepiness into a cocked hat tumbling out of a warm bed into a tingling cold bath is a courageous undertaking—requiring some say red corpuscles, some say cranial numbness. Action and plenty of it is achieved by pure force of necessity. Caution is and should be exercised by those who shrivel up and turn blue-lipped under the torture—"shrinking violets" should abandon the cold bath program in favor of the "yellers and

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** Pure "hocum" is the foundation of much sales chatter but not so with the hot water story which is seated on sound scientific fact. The following attributed to H. W. Haggard, professor of Applied Physiology, Yale University, presents the avenue of heat loss as well as the amount in Btu. per 24 hr. from the average human body at rest in the comfortably heated room:*

	Btu. per day	% total loss
Lost by food and water ingestion	202	1.8
Lost by expired air	1,064	10.7
Lost by evaporation from skin	1,456	14.5
Lost by radiation and conduction from skin	7,168	73.0
	9,890	100.0

chest-beaters." The same can be said of those strong-hearted and persistent victims who experience a momentarily invigorating effect from a cold morning bath only to find lassitude and bogging down resulting about mid-morning from the shock of such violent contraction of capillaries. Conversely a hot bath at say 105°F and over moves the blood rapidly toward the skin surface. Contrary to popular belief a hot bath is more a powerful stimulation to the human circulatory system than is a cold bath. Because very hot baths sap the strength, duration should not exceed four or five minutes and should be reduced in temperature at the end to around 95°F in order to return blood to the normal course, close the pores and prevent colds. Dry thoroughly and avoid drafts. Very hot baths should be scrupulously avoided by people suffering from heart irregularities, rheumatism and blood pressure conditions. Showers lend themselves to more easily controlled variation in temperatures. Stimulation of the blood stream causes a more rapid oxidation of bodily impurities through the lungs—in truth a bath is "getting a lift the natural way." Dr. Bower states that a "veritable course of skin gymnastics can be secured by alternating a cold shower with a hot—using extreme limits of bearability—causing a contraction followed by a dilation of blood vessels that amounts to a massage of the circulation." In contrast a stimulating bath makes a rubbing table look like a surgical operation—the cure without the torture.

Hot weather to most people means cold baths—pass them by. A reasonably warm bath, cleansing the pores and promoting surface circulation, accelerates loss of heat otherwise pent up within the blood stream and surrounding tissue. The evaporation of moisture or perspiration absorbs heat from the skin with a consequent cooling affect much more sustaining than the momentary shiver of a cold bath. In wintertime a warm bath equalizes the circulation throughout the body bringing clammy feet or other chilled areas back to life, but be careful to close the pores before re-exposure. After-exercise baths remove perspiration and abnormal skin secretions. Golf and other hard work in addition to giving vent to accumulated spleen, actually is productive of fatigue toxins and spent cells which must be removed from both the skin surface and the muscle structure. Stiffness from violent exercise is fundamentally a failure of the blood vessels to supply new energy as rapidly as needed to those muscles employed in the stretching or compressing process of whacking the ball or wielding a racket, as the case might be. Revivification of circulation promotes a natural rehabilitation of tired ligaments.

Pause to consider the cost of a luxuriant bath, the common privilege of we American kings—15 gal. with just a little from the cold faucet provides a sumptuously loaded tub. Recall now approximately 2 cu. ft. of manufactured gas are required per gal. of hot water or 2 x 15 is 30 cu. ft., which at, say, 90 cents per Mcf. costs 2.7 cents! What a price for such a value! Thumb through the long list of life's superfluities such as cigarettes, cocktails, movies, trash magazines, kid toys, beautician vanities, that unneeded stick of furniture and those aimless automobile airings—all good in their place—but compare, what a value at what a price! A bargain?—ask any sane and sensible man or woman.

Certain disabilities give rise to the prescription of regular hot baths by physicians to bring about relief or to effect cures for many diseases, infections and maladjustments of the human body. Common colds are contracted during periods of low resistance when a retarded circulatory condition is caused by a local chilling effect or is contracted by exposure to as yet unknown germs. Any stoppages to the system adds to the cold susceptibility. Under the stimulation of a long, hot bath an equalization of circulation occurs which permits stagnant blood to flow back to the lungs, there permitting the burning up of or oxidation of impurities. Inducing a mild sweat can be further helped by drinking hot lemonade, hot salt water or more potent internal applications, BUT get to bed and cover up. Hot baths judiciously indulged in restore natural resistance. Under orders from a competent doctor baths are helpful to swollen joints, boils, gout, corns, muscular rheumatism, various fevers, neuralgia, sciatica, lumbago, Bright's disease of the kidneys and generally for its hydro-pathic effects. In abating and drawing infections, bruises and scratches, hot water is exceedingly beneficial. A daily bath for "harem-scarum" youngsters with their multitude of bumps and skin abrasions is maternally recognized as a heaven-sent blessing.

Cleansing Face and Hands

CLEANSING FACE AND HANDS—ah, the innumerable articles syndicated in newspapers and periodicals discoursing upon beauty and how to obtain this elusive state of being. Discovery is yet to be made of a reputable skin specialist (stylishly termed dermatologist who does not admit candidly that cleanliness of the facial pores achieved through the regular use of hot water is the beginning of a sound complexion. The secret longing of every woman's heart, the putting the foot on the first round of the ladder to the goal of that entrancing loveliness of the "skin you love to touch," is disgustingly simple—before retiring at night apply a hot towel to the face in order to open the pores, then thoroughly wash with a neutral, non-irritating soap, thus removing dirt, dead cells, superfluous oil secretions and relaxing muscular tension, then rinse in warm water to remove soap and finish with a dash of cold water to close pores and accelerate circulation. Artificial preparations, expensive creams and fancy facial treatments can never replace the superlative value of the systematic home use of hot water. Even the manufacturers of "beauty out of the box" are prone to suggesting "remove on retiring." Some druggists and beauticians having an axe to grind, advise using creams and other preparations in place of soap and hot water. Good cosmetics are generally conceded to enhance and emphasize natural beauty, but the basic elements of beauty demand a clean, free-breathing skin obtained by that most effective and least expensive method of old-fashioned hot water every night. Regularity is the soul of virtue. A note of warning is hereby sounded for salesmen to tread lightly and carefully in this "holy of holies," this "sanctum sanctorum" of the fair sex—beauty care for the ladies must be handled gingerly.

Quite unaccountably the human race, particularly the male of the specie, disregards the importance of hands as an evidence of good breeding. Many women devote hours to the filing, tinting, polishing, japalacing and what not of finer nails and then neglect to properly scrub their hands. Actors, interpretive dancers, students of charm all emphasize the possible character, grace and expressiveness reposing in the hands—what a pity that we humans of commoner clay fail to preserve and enhance by ordinary cleanliness their eloquence. Frequent washing will aid the cause—yea verily, hot water has no substitute. Delicate skins, however, should be treated to a skin lotion in the cold weather to prevent chapping, although warm gloves suffice to most people. Lemon juice will bleach out those disagreeable cigarette stains. Prevent that grimy,

ill-kept appearance of hands needing only a little soap and water. Aspire to this mark of the sophisticated.

The skin of the face and hands is the most exposed to the air, to the wind and to more dirt, does not receive the healthful friction of clothes. The face is less protected and more encumbered with the heavy touch of those "improve on nature" decorative efforts—and, excluding possibly only the neck and hair, reveal the ravages of neglect and advancing years as no other index. Sane attentions are imperative. Too frequent hand and face washing, however, removes too much oil resulting thereby in a dry or scaly condition requiring the addition of natural oil in some form to create an equilibrium. Wrinkles and creases in the face and that "turkey-gobbler neck" are crying examples of cold water washers. Hot Water Salesmen, do your stuff! You are more of a beauty dispenser—and a better one—than the druggist. Don't skip your chance in hammering home that point of "preserve the freshness of youth's loveliness the natural way." Women love it—men fight for it.

The part played by hands in the transferring of diseases is vastly underestimated by most people. The meticulous care taken by a physician, not to mention a surgeon, is ample testimony of the attitude of science on the communicability of infections and diseases through the medium of the hands. In the course of a day children's and adult's hands are in frequent contact with such things as door knobs, magazines, mail, clothing, toys, furniture, money and other harborers of common cold and more deadly germs. Cleanliness is a vital safeguard to the health of all members of the family. The ease of obtaining hot water from the faucet determines to a surprising extent the frequency of hand washing particularly amongst the male and the young of the specie. Automatic hot water is society's first line of defense in the constant hygienic battle against the inroads of disease on our civilization.

Shaving

SHAVING oneself is at the best a tedious nuisance but without hot water it is a chin-chopping, lacerating, wire-cutting affair. Hot water softens the bristles and adds to the penetrating characteristics of a warmly inviting lather. Ask any unbewhiskered ex-army man. Ladies, believe it or not, clammy, cold suds are not a fitting prelude for those breakfast ham and eggs. That "going-out-in-the-evening" shave, a really close operation, is sheer cruelty without benefit of all the barbers' art including hot water.

Shampooing

SHAMPOOING in cold, cool or merely warm water —NEVER not even by the heathens. HOT water and plenty of it every other week. The *aqua pura* must be almost violently hot to cut the natural oils and greases, not to mention dirt, dandruff and perspiration—and then a first class rinse to wash out *the etc.* and soap. Temperature extremes will add zest to that massage of the circulation in the scalp. A flexible hose with a spray head makes shampooing easier when attached to a combination faucet. At fifty cents "a throw" and up—mostly up—even the most fastidious women can bring themselves to perform self shampooing at home with profit and pleasure if properly equipped.

Washing

WASHING FABRICS—that full-bosomed Monday morning nightmare and those odd evening wash bowl jobs of "just-rinsing-out-a-few-duds"—add further testimony to the assertion that "woman's work is never done." These fall under the general heading of laundrying concerning which reliable information is not as wide spread as it commonly supposed. Different materials with variable degrees of dirtiness demand separate and distinct laundrying procedure—a subject wholly mystifying to most men as well as to a considerable number of the fair sex. One of the least probed phases is that of stain removal. So many worthwhile pamphlets treating with laundering are on the market, thanks to the government, washing machine, soap and other people, that only a few high lights will be advanced in the ensuing discussion.*

Of considerable importance is the hardness of water which is a local condition depending on the source of city supply, rain being virtually the only source entirely free from this curse, whereas river and artisan wells are in general particularly noted as sources high in hardness content. Under adverse conditions water hardness seriously diminishes the solubility of soap and hence its cleansing effects. When soap is added to hard water substantial quantities are first absorbed, showing up as curds in an effort to offset the hardness before any further soap may be usefully employed. Necessary materials for water softening, such as borax, household ammonia or washing soda, are inexpensive softeners aiding in the effective and economical use of soaps. The temperature of water likewise conditions soap solubility, the hotter the water the less soap required to accomplish any given end. The research manager of a prominent soap company is quoted as saying, "a soap which has a good degree of solubility in cold or luke-warm water would show a greater cleansing effect in hot water, due to such factors as better penetration and greater easiness of softening and emulsifying the fatty or oily matter left upon soiled surfaces." Chips, flakes or grated soaps dissolve more readily than ordinary bar soap, the getting into solution of which for laundering is accomplished to better advantage in a separate water container or in the tub before clothes are added. The use of strong soaps has a deleterious and destructive effect on all except the roughest fabrics—beware of cheap grades of soap used in many commercial laundries. Hard water as well as inadequately heated water are often invitations to use strong, cheap soaps. Soaking clothes in hard water is as satisfactory as in soft water unless hardness is due to iron. Hot water, correctly softened, will reduce the soap cost item appreciably. As indispensable as proper soap is to laundering it is not now and never will be a satisfactory substitute for hot water.

An intelligent approach to the "doing of a family wash" can accomplish wonders in easing the task and incidentally, in reducing the hot water consumption. The initial step is obviously to sort the various pieces of clothing and linen according to gradations of dirtiness and sequence of washing. Stains to be lifted by some other means than the regular washing process, should first be removed. Then proceed to soaking which when done in cool clear tap water, for two or more hours, will remove or loosen much dirt as well as lifting some stains much better than the hot water to follow. McCall's Magazine says, "after numerous tests we found that tap water is as satisfactory for soaking as lukewarm water." In fact, soaking in hot water is detrimental in most cases in that heat has a tendency to set many common stains. Soaking saves working time, hot water and soap and further than this, lessens wear

(Continued on page 38)

* *Particularly recommended is "All About Laundering" by Hamilton and Jeffryes published by McCall's Magazine.*

Recent Developments In the Use of Copper Pipe for Gas Distribution*

F. A. Hough

Distribution Engineer
Southern Counties Gas Company of California

INTEREST in the use of copper pipe in gas distributing systems is now being displayed by a number of gas companies operating in areas where corrosive soils are encountered.

During 1934, copper gas services were installed on an experimental basis by the Detroit City Gas Company, and by the Equitable Gas Company in Pittsburgh. The Houston Gas & Electric Co., the San Antonio Public Service Company, the Pacific Gas and Electric Company, the Los Angeles Gas & Electric Corporation, and the Southern California Gas Company have been investigating the use of copper pipe within the past year.

The recent installation of a 2″ copper gas line from the Continental Oil Field to Ship Rock, New Mexico, a distance of about seven miles, is an interesting example of the use of copper pipe to solve a difficult soil corrosion problem. This line was built by the United States Government and operates at 150 lb. per sq. in. pressure.

Nearly all water companies operating in California use some copper tubing for water services and in some cases, notably in the cities of Los Angeles, Oakland, San Diego, Santa Barbara, and Ventura, copper tubing is used extensively for that purpose.

Copper pipe has been used by the Southern Counties Gas Company of California since 1926. By June 30, 1935, its copper installations consisted of:

	Total Length (Feet)		Installed Cost (Dollars)
10,686 Services		255,518	$247,568.21*
Mains—1½″ and smaller	7,862		
2″	252,838		
3″	39,960	300,660	292,456.13
Total		556,178	$540,024.34

* This cost includes the cost of curb-meter boxes. Services run from main to property line only. Average length of service is 24 feet.

Mr. A. F. Bridge and the writer presented a paper at the A.G.A. Distribution Conference in Birmingham, Alabama, in April 1932, reporting the results of the Southern Counties Gas Company's investigation of copper pipe.(1)

The purpose of the present report is to discuss the conclusions of the earlier paper in the light of our experience since its publication, and to present new information developed since the publication of the 1932 paper, concerning both the corrosion resisting properties of copper pipe and construction methods for the use of that pipe. Cost data obtained from recent installations and a discussion of the engineering economy involved in the use of copper pipe under present conditions are also included in this paper.

Review of Previous Paper

The 1932 paper presented evidence concerning the corrosion resisting properties of copper and copper bearing alloys when exposed to corrosive soils and when exposed to corrosive gases sometimes found in natural or manufactured gas.

The soil corrosion evidence was taken from publications of the Bureau of Standards and also from laboratory and field tests made by the authors' company.

Evidence concerning the corrosive effect of hydrogen sulfide, carbon dioxide, oxygen, water vapor, hydrocyanic acid gas and various mixtures of these gases and also the corrosive effect of drip oil taken from natural and manufactured gas distributing systems was obtained from tests run in the Southern Counties Gas Company's laboratory and from field tests made by installing short sections of copper pipe in the distribution systems of the San Diego Consolidated Gas and Electric Company and the Pacific Gas and Electric Company. Both of these companies were distributing oil gas at the time.

The earlier paper also described construction methods in use at the time of its publication and presented a study of the engineering economy of the use of copper pipe.

The conclusions drawn in that paper, which still appear to be valid, are as follows:

1. In many corrosive soils the rate of corrosion of copper is less than that of steel by an amount sufficient to justify its use for gas services and for 2″ and 3″ mains, provided internal corrosion is not a limiting factor.

3. Copper pipe is probably unsuited for underground pipe in areas where stray current electrolysis is severe.

4. Copper pipe should not be used to distribute gas containing as much as one grain of hydrogen sulfide per 100 cubic feet, unless the gas is dry.

5. Undehydrated oil gas as ordinarily purified will corrode copper pipe.

6. The corrosion of copper pipe by purified but undehydrated oil gas, is more rapid than that due to many corrosive soils.

7. Dehydration greatly reduces the rate at which the corrosive gases, normally present in purified manufactured gas, attack copper.

8. From the standpoint of both mechanical strength and soil corrosion resistance, a wall thickness of .065″ (No. 16 gage) is sufficient for copper gas mains and services 3″ in diameter and smaller.

11. When a reduction in pipe size is permissible, it is practical and eco-

* *Presented at the Pacific Coast Gas Association, September 17, 1935.*

(1) *Copper pipe for Gas Distribution. Arthur F. Bridge and Frederic A. Hough. American Gas Journal, May, 1932, pp. 48-49.*

TABLE 1
RESULTS OF LABORATORY ACCELERATED CORROSION TESTS MADE TO DETERMINE THE EFFECT OF IRON OXIDE ON THE CORROSION OF COPPER IN SOIL

Sample Number	Kind of Sample	Soil Conditions Used	Loss in Weight	Surface Sq. Cms.	Loss Gms./Sq. Cm. × 10^4	Average Loss	Remarks
29	Steel	Soil	0.0738	41.7	17.70		Uniform honeycomb corrosion.
30	Steel	Soil	0.0675	41.7	16.20	17.71	
31	Steel	Soil	0.0766	41.7	18.37		
32	Steel	Soil	0.0774	41.7	18.57		
25	Copper	Soil	0.0161	41.7	3.86		Samples 25 and 27 are nearly covered with a black tarnish. No. 28 is about ½ covered with tarnish, No. 26 is only tarnished around the edges.
26	Copper	Soil	0.0073	41.7	1.75	3.79	
27	Copper	Soil	0.0157	41.7	3.77		
28	Copper	Soil	0.0242	41.7	5.81		
5	Copper	Soil	0.0027	53.3	0.51		Heavy black tarnish covers surface on both sides. Steel surrounding No. 8 very badly corroded and rusted.
6	in con-	and rust	0.0071	53.3	1.33		
7	tact with	mixture	0.0061	53.3	1.15	3.06	
8	steel	"	0.0494	53.3	9.26		
21	Copper	Soil	0.0063	41.7	1.51		No. 21 and No. 23 are ¼ covered with a purple scale. Rest of surface only tarnished slightly. No. 22 and No. 24 are completely covered with the purple and green scale.
22	Copper	and rust	0.0739	41.7	17.73		
23	Copper	"	0.0325	41.7	7.80	11.85	
24	Copper	"	0.0849	41.7	20.37		
17	Steel	Soil	2.9797	41.7	717.0		Pitted and deeply corroded over entire surface.
18	Steel	and rust	2.5650	41.7	618.0	667.5	

nomical to replace old mains and services by using them for conduits for copper pipe, thus avoiding much cutting of pavement and lawns.

12. Because of the low cost of installations, the use of copper pipe inside existing steel mains and services is fully justified, regardless of the rate at which the soil attacks steel.

Conclusion No. 2 of the original report, concerning the corrosion resistance of copper alloys, conclusion No. 10, concerning the use of solder fittings, and conclusions No. 13 and No. 14, concerning the economy of the use of copper pipe, should all now be modified, as this paper will show.

New Evidence Concerning the Corrosion Resisting Properties of Copper

The best evidence concerning the ability of copper pipe to withstand soil corrosion that we can now add to that presented in the 1932 paper is the results of our actual experience with the copper pipe now in our distribution systems. We now have over 100 miles of copper pipe installed in almost every type of corrosive soil to be found in Southern California, including adobe, alkali bottoms, salt marshes, and submarine crossings. These copper lines are connected at innumerable points to steel or cast iron lines. Some of this copper has now been in the ground for nearly nine years in soils where our previous experience has shown that 2" steel pipe protected with a hot asphalt coating without wrapper will last considerably less than nine years. We have yet to find a case where an appreciable loss of copper metal has occurred. And what is just as important, we have yet to find any evidence that the use of copper pipe has resulted in the accelerated corrosion of the steel or cast iron lines to which copper has been connected. These observations are based for the most part on the inspection of short lengths of copper pipe exposed during construction work. However, on several occasions it has been necessary to remove several hundred feet of copper pipe for some reason other than corrosion. These cases have provided excellent opportunities to study the condition of copper lines that have been exposed to corrosive soils.

A 3" red brass submarine line across Balboa Bay is a notable instance of this type. This was a bare copper line 988 feet long, installed in January 1928 in a dredged trench at the bottom of the Bay. The lengths were joined with Tobin bronze brazed butt joints, and at each end of the crossing a brazed connection was made to a steel distribution system. No insulating joints were used. It was necessary to remove this line in December, 1933, because of dredging operations in the Bay. Upon removal, the line, including the Tobin bronze collars and the sections of pipe at the shore line which were alternately submerged and exposed by the tides, was found in perfect condition.

During the discussion of the copper pipe paper at the A.G.A. Distribution Conference in 1932, Mr. F. G. Smith, metallurgist, American Brass Company, expressed apprehension concerning the practice of installing copper pipe inside of old steel mains and services as was recommended in the 1932 paper. He stated that copper condenser tubes have been found to corrode rapidly at points where they came in contact with iron and steel corrosion products and that in general the presence of iron salts tends to increase the rate of corrosion of copper.

As a result of this comment accelerated laboratory tests were run in the Southern Counties Gas Company's laboratory with the following results:

When copper samples were buried in a mixture consisting of 75% corrosive soil and 25% from oxide, the average loss of weight was approximately three times as great as when copper samples were buried in the same soil to which no iron oxide had been added. However, when copper samples were connected electrically to steel samples and both were buried in a mixture of 75% soil and 25% iron oxide, the loss of weight of copper was in some cases, but not in all, about the same as when buried in soil containing no added iron oxide. None of the copper samples used in these tests lost anywhere near as much weight per unit area as did steel samples exposed to the 75% soil and 25% iron oxide mixture.

The results of these tests are summarized in Table 1. For details concerning the manner in which accelerated soil corrosion tests on copper are conducted in our laboratory, see the 1932 report.

TABLE 2

	(Dollars per foot delivered to job)					
Nominal Diameter	¾"	1"	1¼"	2"	3"	4"
Steel (standard weight; no coating)	.057	.081	.108	.191	.368	.487
Copper *	.127	.162	.200	.350	.535	
Cast Iron (mechanical joint, 250 lb. W.P., 16 ft. lengths)				.320	.526	.630

* Copper tubing 17 Stubbs gage sizes ¾", 1", and 1¼".
16 Stubbs gage sizes 2" and 3".

Numerous field inspections of copper pipes that have been installed inside of old steel pipes for several years have failed to disclose a case where serious corrosion of the copper has occurred. We have therefore concluded that the accelerating effect of iron oxide on the corrosion of copper by a soil is not serious enough under our field conditions to warrant the discontinuance of the practice of using old steel pipes for conduits in cases where savings in installation cost are effected by such use.

When copper and steel are submerged in an electrolyte, a galvanic potential difference of approximately .77 volts exists between the two, the steel being the more positive of the two. It is therefore evident that when steel and copper are connected underground a galvanic cell is set up which tends to accelerate the corrosion of the steel. This fact has deterred some companies in the use of copper pipe. However, a single isolated theoretical fact of this type does not permit the drawing of valid conclusions concerning so complex a phenomena as soil corrosion. Apparently in actual practice other factors such as polarization and the electrical resistance of the soil, and the existence of other potential differences of equal or greater magnitude such as those produced by differences in oxygen concentration or moisture content, tend to reduce the effect of the potential difference between copper and steel so that it is not the factor that determines the life of the steel and therefore it is of negligible importance.

This dissimilar metal problem was treated at some length in the 1932 paper. The conclusion drawn in that paper was that if certain simple precautions are taken to prevent concentrated corrosion, which occasionally occurs when the area of the ferrous metal is small compared with the area of the copper, no ill effects result from the use of copper in a system consisting predominantly of steel or cast iron pipe. This conclusion is based on the field observations of a trained observer sent out to look for trouble from this source.

The precautions we observe are these: We do not use steel, cast iron, or wrought iron fittings in copper lines and we protect all joints between copper and ferrous metals with a protective coating such as hot asphalt or coal-tar. This protection is extended for a distance of 2 or 3 feet from the junction along both the copper and steel lines.

Since the publication of the 1932 paper we have found no new evidence bearing on this point that would tend to modify the conclusions drawn in that paper.

The internal corrosion of copper pipe by gas is not proving to be a problem with us because of the almost complete absence of hydrogen sulfide from the natural gas which we distribute.

Cost Data

Recent costs (including company handling charges) of small diameter copper, bare steel, wrapped steel, and cast iron pipe are given in Table 2.

Prior to November 1934, we installed steel services protected with two coats of coal-tar and an outside wrapper of asbestos felt in all areas excepting those in which the soil is known to be very corrosive. In these latter areas copper was installed.

An analysis of the cost of services then disclosed that the average cost of all ¾" services installed between January 1, 1934 and August 31, 1934 was as follows:

¾" wrapped steel services $.7456 per foot
¾" copper services ..... .7509 per foot

Although there was a difference of $.07 per foot in the cost of the pipe, the installed cost of the copper services was only ½ cent per foot higher than the installed cost of wrapped steel services. The lower cost of installing copper services is attributable in part to the cost of applying protective coatings to steel services, and in part to the greater ease of handling and working with copper pipe.

We have discontinued the installation of wrapped steel services because of these cost figures and now install copper services in all soils which are too corrosive to permit the use of bare steel.

The costs of 2" and 3" copper and

(*Continued on page 41*)

TABLE 3

COMPARISON OF COST OF STEEL AND COPPER MAINS INSTALLED IN SOUTHERN COUNTIES GAS COMPANY'S SYSTEM DURING 1934

	Actual Costs ($/foot)				Comparable Costs ($/foot) (Cost elements not affected by type of pipe have been equalized)			
	2" Steel	2" Copper	3" Steel	3" Copper	2" Steel	2" Copper	3" Steel	3" Copper
Total feet installed...	72,723	47,819	8,463	24,022				
Pipe (uncoated)	.1920	.4036	.3414	.4370	.1920	.4036	.3414	.4370
Fittings	.0081	.0153	.0186	.0261	.0081	.0153	.0186	.0261
Welding material	.0078	.0133	.0140	.0164	.0078	.0133	.0140	.0164
Protective coating.....	.0059	.0007	.0136	.0016	.0059	.0007	.0136	.0016
Total Material Cost.	.2138	.4329	.3876	.4811	.2138	.4329	.3876	.4811
Foreman	.0112	.0253	.0164	.0290	.0182	.0182	.0227	.0227
Trenching	.1241	.1771	.1422	.1924	.1506	.1506	.1673	.1673
Pipe laying	.0358	.0483	.0533	.0555	.0358	.0483	.0533	.0555
Application of protective coating	.0089	.0020	.0123	.0017	.0089	.0020	.0123	.0017
Paving	.0143	.0448	.0114	.0382	.0295	.0295	.0248	.0248
Total Labor Cost...	.1943	.2975	.2356	.3168	.2430	.2486	.2804	.2720
Auto and compressor..	.0203	.0262	.0216	.0388	.0232	.0232	.0302	.0302
Tool expense	.0127	.0173	.0159	.0200	.0155	.0146	.0164	.0159
Management expense..	.1091	.1491	.1362	.1712	.1325	.1355	.1530	.1483
Total Misc. Cost....	.1421	.1926	.1737	.2300	.1712	.1733	.1996	.1944
Total Cost	.5502	.9230	.7969	.1028	.6280	.8548	.8676	.9475

Cooking School for Sales Staff Successful

By Ruth Soule

Home Service Director, Brooklyn Union Gas Co., Brooklyn, N. Y.

THE selling staff of The Brooklyn Union Gas Company decided that they wanted a new selling story for ranges, based on cookery, and forthwith they asked for a list of times and temperatures, and information upon the newest methods of meat and vegetable cookery. Since lists are not calculated to arouse enthusiasm, I suggested that the men be divided into groups, and try these new methods for themselves.

Accordingly, we arranged ten groups, of six to eight, each to meet once a week for three weeks, from 5:30 to 7:30 P.M. We devised a course which featured top stove cookery for the first lesson, oven cookery for the second, and the use of the broiler for the third. The Electrolux was included with this third lesson.

Aprons were rented for the men (there were a few women, too) and when they had taken off their coats and donned their aprons, they were a very businesslike-looking group. We had worked out in advance all the "talking part" of our course, so that every section was given the same basic information. Slips were drawn at the beginning of each session upon which duties were written. The timing was planned so that everybody could watch all operations, as well as taking care of his own responsibility. Each lesson had been planned as a complete meal, so when the food was ready, everybody sat down to a meal in which he had a share. George F. B. Owens, Domestic Sales Manager, or Frank B. Herty, Retail Sales Supervisor, attended all the meetings, and led the discussion at the end of each lesson.

The astonishing thing about this project to those of us who had planned it was the enthusiastic response the salesmen gave. Not one of them missed a single class, and they engaged in long discussions as to whose product was better, especially the meat which was seared at 450° and roasted at 400° as against that which was done at 325°, from a cold start. (They had done both, weighing each before and after).

From the very beginning of the course, sales resulted, and the men called us up to tell us about them; we were as delighted as they, of course.

The wholesale division and the maintenance division requested the same course—and we gave it. Immediately after Christmas we are to begin with the Shop, also at their request.

This is not a new idea, of course, I think it has been done for years by a great many companies. We did it ourselves six years ago. But we have never had so enthusiastic a response to a cooperative project, and it is enthusiasm that makes sales.

Correspondence

"Mr. S. G. Krake, Publisher,
Dear Sir:

"In reference to the portion of my article that appeared on pages 23-24 of the December, 1935, issue of the AMERICAN GAS JOURNAL which reads as follows: 'Do not think for a moment that they do not give us real competition. They (the electric company) have the money to run huge ads in the paper and put on big cooking schools. They practically control the local paper so the case of a person getting a headache from breathing gas in Los Angeles is made into an event of national importance.' Mr. L. C. Gifford, manager of the local paper, desires that I request you to publish a correction of this portion of my article.

"It was not my intention to convey the meaning or to give the impression that the electric company by virtue of stock owned in the paper or in consequence of being in a position, financially or otherwise, to exercise duress over the paper, controlled or even influenced its news or editorial policy. The idea I intended to convey was that the advertising which the electric company in the regular conduct of its business granted to the paper was of so much greater volume than ours that it naturally engendered a degree of good will not enjoyed by us which strongly influenced—perhaps unconsciously—the attitude of the paper towards the competing concerns. Perhaps I relied too much on the context of this paragraph of my article to make clear my meaning, and did not give sufficient consideration as to how the isolated sentence using the word 'control' would sound and I am glad now to remove any doubt as to my meaning.

"Occupying the position of a partisan, I am not unconscious of the fact that, however hard I may try, I am very likely far from dispassionate in the matter. If selfish interests have in fact warped my judgment and made me unduly sensitive and quick to regard as harmful statements and policies of the paper which would not be so regarded by unprejudiced persons, I wish to apologize for having given voice to expressions which indicated such a feeling on my part."

"Sincerely yours,

ELLIS MILLS, Manager.
Piedmont Gas Co.,
Hickory, N. C."

THE EYES of the gas industry are on the second great Gas Range Derby, sponsored by the A.G.A.'s Domestic Range Committee. A purse of $12,000 and a purpose whose value cannot be measured in dollars.

In last year's event, two of the three prizes in Division I (the big city group) went to companies which featured Estate Ranges in their campaigns. And again this year, the betting odds will favor those companies which concentrate on the new, super-smart, more-than-modern Estate.

Look at the picture and you'll see the champion of champions—sensational new appearance and a long list of features designed to make women dissatisfied with their unmodern cooking equipment.

THIS YEAR, MORE THAN EVER BEFORE, IT WILL PAY TO

CONCENTRATE ON ESTATE!

THE ESTATE STOVE COMPANY, Hamilton, Ohio

National Water Heater Campaign

A COMPREHENSIVE, thoroughly planned campaign to promote the sale of automatic gas water heating sponsored by the Gas Water Heater Division of the Association of Gas Appliances and Equipment Manufacturers and the Water Heating Committee of the Commercial Section of the American Gas Association will get under way February 1.

The object is to sell 300,000 new automatic gas water heaters in 1936. The following nineteen water heater manufacturers have appropriated $100,000 to finance the program:

American Gas Products Corporation, Cleveland Heater Company, Crane Company, Premier Heater Division; Everhot Heater Company, Gas and Electric Heater Company, Gas Equipment Company, Handley-Brown Heater Company, Hoffman Gas and Electric Heater Company, Hotstream Heater Company, Lawson Manufacturing Company, Lovekin Water Heater Company, J. W. Moore Valve Corporation, Pittsburgh Water Heater Corporation, Ruud Manufacturing Company, Sands Manufacturing Company, Surface Combustion Corporation, United American Bosch Corporation, Welsbach Company, Whitehead Metal Products Company, John Wood Manufacturing Company.

The campaign will run for eight months. Each gas company can select any two months out of the eight, beginning with February. There will be many prizes for salesmen—large enough to be worth working for. A total of 1185 cash prizes will be an inducement to make all hustle. There will be a total of 120 cash prizes every month. Then a total of 90 cash awards for the two months contest and 90 cash awards for the eight months contest for outstanding company sales records, and 45 cash awards to salesmen having the best sales results over the eight month period.

The contest is open to all operating gas companies, divisions, districts and branches thereof and plumber-dealers in the United States. . . . Every effort has been made to make the contest fair to all participants. Inequalities due to difference in rates and meters are removed by group classifications. All sales and rental sales will count in this contest.

Promotion Fees

The registration fees to gas companies entering the contest are based on the total domestic meters in service as of December 31, 1935. They are as follows:

Division 1, 100,000 meters and up, $20.00; Division 2, 50,000 up to 100,000 meters, $15.00; Division 3, 10,000 up to 50,000 meters, $10.00; Division 4, 4,000 up to 10,000 meters, $5.00; Division 5, less than 4,000 meters, $3.00.

There is no fee charged to gas company salesmen or plumber dealers. A "Clean Up" Drive portfolio is now in preparation. It shows a mass of promotional material for use on prospects.

All angles of selling are covered in economy appeals, health appeals, beauty appeals, pleasure appeals, comfort and convenience appeals; all combined to sell *gas* as the *preferred fuel for water heating!*

This is the most complete water heating promotional plan ever offered. It is a combination of complete sales helps that will back up the contest—inspire the salesmen—enthuse the plumber-dealer—push up the quota!

The sponsors of this contest give each plumber-dealer special attention. There will be 75 cash prizes totaling $10,000 for this group. All plumber-dealers registering are classified in three groups according to the kind of gas and the rate in the communities served. They will then be put in the proper division with gas companies as shown above, and each registered plumber-dealer will be notified of the group and division in which he is classified.

The Executive Committee—Gas Water Heater Division of Association of Gas Appliance and Equipment Manufacturers are: R. J. Canniff, Chairman; A. P. Brill, Arthur Friedman, C. W. Berghorn, Executive Secretary. The General Chairman is R. A. Koehler, Public Service Electric & Gas Co., Newark, N. J.

Attractive Water Heating Advertising

Does Too-Little Hot Water Make Bath-time a Battle?
You need the KOMPAK Water Heater
New Principles New Design New Economy
COLUMBIA NATURAL GAS CO.
KITTANNING FORD CITY

Slow-Heating Wash Water Making Laundresses Loaf?
You need the KOMPAK Water Heater
New Principles New Design New Economy
COLUMBIA NATURAL GAS CO.
KITTANNING FORD CITY

Ice Water for Dish Water?
You need the KOMPAK Water Heater
New Principles New Design New Economy
COLUMBIA NATURAL GAS CO
KITTANNING FORD CITY

Series of Water Heating Advertisements Prepared by Ketchum, MacLeod & Grove Inc., Pittsburgh, Pa., and Cy Hungerford, Cartoonist.

PAY-LOAD

10

RUUD AUTOMATIC AND NON-AUTOMATIC TYPES WILL HELP YOU BRING IT

back!

Tank Heater • Combination Heaters • Conversion Heaters • Low-Speed Storage • Quick-Speed Storage • Faucet-Action • Continuous Flow • Multi-Coil and Many Others

The water heater *pay-load* is on the way back! Gas company effort will rightly be directed to ALL classes of customers,—to match the water heater to the customer's needs and pocket-book,—and by this win back shut-off and part-time meters.

This can be done with the RUUD line of water heaters, ready in ten major types and many sizes to fit every home and building. For 1936:—new models and new improvements with full details on your desk a few days after you mail the coupon below.

RUUD MANUFACTURING COMPANY
Pittsburgh, Pa.

RUUD QUALITY

NAME_____

COMPANY_____

CITY_____

Mail the coupon for full details of the RUUD 1936 line

RELIABLE data, easily available from your own operating records, have no doubt simplified the selection of new equipment on numerous occasions. Roots-Connersville Rotary Positive Boosters are usually purchased as a result of first hand information of that kind.

These two new "R-C" Rotary Positive Gas Pumps, each of which deliver 1,500,000 cu. ft. of gas per hour against a pressure of 7½ lbs., were installed by Boston Consolidated Gas Co., because of the satisfactory performance of "R-C" Rotary Positive Gas Pumps installed over twenty-eight years ago.

Retaining essential features of proven design, "R-C" equipment today embodies improvements that still further increase their reliability and efficiency. Ask for complete information on the latest design in "R-C" gas pumps.

"TOMORROW'S ENGINEERING APPROVED BY YESTERDAY'S EXPERIENCE"

Roots
CONNERSVILLE
BLOWER CORP.
CONNERSVILLE, INDIANA
NEW YORK • CHICAGO • POTTSTOWN, PA. • SAN FRANCISCO
PITTSBURGH • BOSTON • DETROIT • ST. LOUIS • LOS ANGELES

Domestic Gas Utilization

(Continued from page 30)

and tear of the fabric caused by excessive rubbing. Avoid long soaking of woolens, flannels and colored clothes with non-fast dyes or highly colored prints. Hand washing of laundry in water with temperatures varying from 110°F to 115°F represents good practice, colder than this being ineffective to remove dirt and hotter being more than hands can stand. An adequate supply of hot water and soap will supplant a lot of human vigor on the washboard with consequent prolonged life both in the clothes and the weary agitator. After thorough cleaning there is still a rinsing job to be performed which is best accomplished in fairly warm water. Plunging laundry into a rinse of cold water tends to set or congeal the soap particles still in the clothes making removal difficult or leaving a harsh, greyish finish. Boiling of hand-washed clothes is seldom necessary under reasonably ideal conditions unless to completely disinfect which can be achieved in 5 to 6 min. Longer boiling than this unnecessarily wastes fuel and will cause a yellowing of the fabrics, and serves no purpose as far as dirt removal is concerned. Blueing is sometimes added to the last rinse water for white materials to retard yellowing and lend a whiter appearance to the finished product. This practice is frequent when clothes are dried indoors without benefit of the bleaching act of the sun. The preparation of starch is another laundry operation requiring heat for a very few minutes of cooking. Starch when added to cotton fabrics, shirts, etc., prior to ironing, lends a crisp freshness to the final result and helps in keeping clean during the wearing. Silks, rayons and the ladies' "unmentionables" which are usually washed separately in basin water no hotter than 105°F, should be kneaded and squeezed in suds (not rubbed) to prevent dulling gloss and breaking of the rather delicate fibres.

Monday afternoon and Tuesday are incomparable opportunities for the alert hot water heater salesman as well as for yodelling the washing machine distributor, with the plea of easier and shorter laundrying hours. Speaking of the latter, it is timely to observe that washing machine demonstrators accompany demands for 140°F to 160°F hot water with well-grounded claims of improved superlative performance of their product at such temperatures. If anyone is convinced of the necessity for such heat in excess of 140°F it is recommended that thermostats on gas heaters be advanced for the wash period and then set back to achieve the economy of lower temperatures for the balance of the week.

Uncompromising honesty forces the admission that a tank heater or laundry stove can with expert handling produce hot water results for baths, Monday morning washings and other bulk loads comparable to those of the automatic heater, provided the inconvenience and frequently the cost are disregarded; but the most readily preceived margin of superiority of the automatic lies in the constant availability of an even temperature supply for the more irregular and intermittent uses such as the cleansing of hands and face, the treatment of the sick already described and miscellaneous small uses.

Miscellaneous Uses

The MISCELLANEOUS USES comprise a long list in which the convenience and instant abundance of supply from an automatic manifestly reduces the drudgery of a multitude of household tasks. In the fore-ranks of the procession is what to the majority of families is

the most laborious and loathsome job in the domestic routine; to wit, washing of dishes, silver, glassware and cooking utensils—you know that formidable pile of messy, greasy dishes, pots and pans after an otherwise all-satisfying meal. The job is not so frightful if: 1. Use rubber scrape to whisk food and debris into garbage; 2. Rinse briefly under hot faucet; 3. With plenty of frothy suds wash in water as hot as hands can stand (about 112°F) in the following order: Glassware, silver, china and then the mixing and cooking implements; 4. Stack in orderly fashion in wire drain rack and douse with very hot water; 5. Wipe with clean dish towels. Hot water is essential to cut grease and at sufficiently high temperature assists in drying articles in drain rack. An earmark of a clever and an efficient housewife which is synonymous with organizer, is one who soaks and washes as occasion allows during the process of preparing the meal thus avoiding the clutter of a full sink at the end. Flowing several quarts of hot water down the drain pipe as a final gesture will assist in easing debris and grease into the sewer and leaving a sweet smelling sink. Dr. J. E. Walker, The Army and Navy Hospital, Hot Springs, Arkansas, reports, "There seems to be no question but that raising the temperature increases markedly the germicidal activity of soaps." Genuine sterilization in clear water requires boiling, but a hot, soapy solution is an effective agent. Respiratory infections and other disease germs can and are spread amongst members of a household via the dish pan unless hot, soapy water is used with a vengeance. And all for a gas cost of a fraction of a cent, in fact, less than the price of one cigarette. A vivid imagination is requisite to enshrine dish washing as an unalloyed pleasure but the presence of automatic hot water contributes mightily to at least a measurably less irritated approach. Other important miscellaneous uses of hot water might be listed in Whitmanesque style as: 1. Cleaning non-polished woodwork and furniture, also metals; 2. Washing windows, porches but used sparingly on waxed floors; 3. Cleaning porcelains, enamels and also tiled floors and bathroom wainscoting; 4. Washing cupboards, shelves, curtains and linoleums; 5. Cleaning carpets, rugs, blankets, fireplaces, gas ranges and refrigerators; 6. Washing vegetables, fruits, in sundry cooking operations and warming the babies' bottles. And then a bag full of tricks like heating a knife to facilitate slicing brick ice cream or extraction from paper pails, slicing a hard-boiled egg, dipping in hot water to expand tomato skin from pulp to aid in peeling (also applicable to peaches) and dousing gelatine molds to permit clean removal of otherwise clinging material. A housewife blessed with real automatic hot water regards the service as like unto the air we breathe.

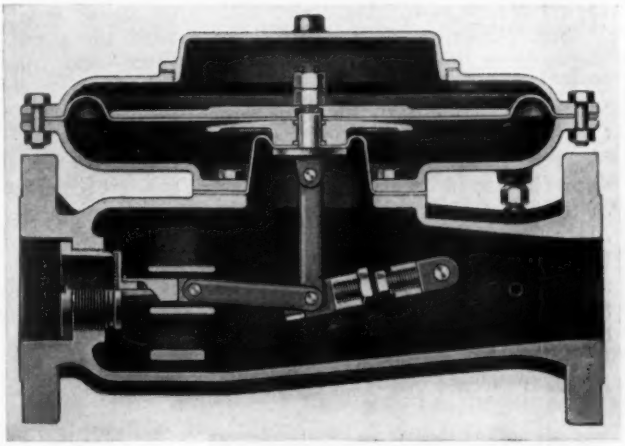
COMPETITION OUR GREATEST PROBLEM

(Continued from page 11)

We of the Journal staff look with confidence toward the future. We have no misgivings as to the continuation of the present aggressive spirit in the industry. We pledge to give our readers during the coming year the most up-to-date material available to assist them in turning this spirit into tangible results. At a time like this, new developments take place rapidly. It is the duty of each one of us to keep in touch with them and to apply them whenever they will prove helpful.

We thank our advertisers for their past loyal support and our readers for their interest and for the many kind letters they have written us during 1935. We wish each one a happy, prosperous and actively successful New Year.

INDUSTRIAL



Cross-section view—REYNOLDS Dead Weight, Single Balanced Valve, Toggle Type Regulator

REYNOLDS Improved Gas Regulators for industrial control give greater capacity, increased range and quicker response. They assure smooth, constant outlet pressure and volume, even though inlet pressure and volume are irregular. Reynolds Industrial Regulators are manufactured in single and double balanced valve construction for all types of operating conditions. They are proved by performance in factory-supervised tests, and on installations throughout the world.

REYNOLDS PRODUCTS

High Pressure Service House Regulators—Straight Lever Type—Models 0-10-20 series; Toggle Lever Type—Model 30 series.

Low Pressure Service or Appliance Regulators.

District Station Regulators, Single or Double Valve—Auxiliary Bowl and Automatic Loading Device Optional.

High Pressure Line Regulators—Pilot Loaded—Pilot Controlled.

Toggle Type Regulators—Single Vavle, Double Valve, Triple Outlet.

Seals—Dead Weight or Mercury.

Back Pressure Valves . Automatic Quick Closing Anti-Vacuum Valves . Automatic Shut Off Valves . Lever Operated Valves . Louver Operated Device . Atmospheric Regulators Vacuum Regulators.

Reynolds Branch Offices:

421 Dwight Building
Kansas City, Mo.

2nd Unit,
Santa Fe Bldg.
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Representatives:

Eastern Appliance Co.
Boston, Mass.

F. E. Newberry,
Avon, N. J.

G. H. Unkefer
428 Boyd Street
Los Angeles, Calif.

REYNOLDS GAS REGULATOR CO.

ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

Novel Electrolux Display

RECENTLY, Mr. Alexander Beebee, Superintendent of the Gas Department, and Mr. Vincent Hoddick, Superintendent of the Gas Street Department, of the Rochester Gas & Electric Co., Rochester, N. Y., conceived the idea of a glass door for use in displaying the inside of the Electrolux refrigerator on the Main Floor show room. This, it was found, had never been done before and offered numerous problems. After finding that no one else had tried out this stunt, Messrs. Beebee and Hoddick said "There's another job for Carl Ayen."

CARL AYEN

Mr. Ayen, refrigerator service and installation expert of the company had figured out how to feature an Electrolux unit, enclosed in glass, at the Company's Exposition exhibit a few years ago. He found the solution after factory experts and engineers had tried and failed. The answer was the simple matter of leaving just a bit of air space between the glass of the enclosure at certain points; after that the unit maintained its frosty coat even in warmly heated exhibition rooms. This exhibition unit has since been used all over the country.

Mr. Ayen found the solution to the present problem, as you will see by looking over the illustration accompanying this article. Mr. Ayen by using two thicknesses of glass, with the proper air space between them, and through the use of insulating materials at the proper places, adapted his idea to one of the regular Electrolux doors, cut away to receive it. And now this automatic gas refrigerator keeps right on maintaining its even temperature, even with its fancy show window front.

This idea attracts visitors to the refrigerator display. They like the looks of the well kept foods, crisp and colorful inside the refrigerator. One doesn't have to open the door to see how interestingly efficient the inside of an Electrolux really is. And who knows, some day glass doors may be a regular feature on automatic refrigerators.

Mr. Ayen told some interesting things about Electrolux. One of them was that since the Company beban handling them in 1926, more than 1,150 of them have been put into use in Rochester and vicinity. Not a one of them has been discontinued to date.

—Courtesy Gas & Elec. News, Rochester, N. Y.

Columbia "Load Builders" Add Over a Billion Feet

(Continued from page 13)

cubic feet of heating equipment installed. By accumulating thirty of these tickets a salesman became eligible to participate in the sweepstakes pari-mutuel "pot" which was made up by the company in proportion to the total amount of business installed by all districts during the campaign.

In addition, a bonus was paid on all tickets held by eligible salesmen whose horses finished in first, second or third place, thus promoting group as well as individual competition.

Over sixty salesmen participated in the final sweepstakes distribution, or about 65 per cent of the entire sales force. The contest, set up in this manner held an incentive to the average producer as well as the top notchers and created a greater amount of all-round interest.

Various types of promotion added to the showmanship of the event. A large chart of the "race track" was installed in each district sales office. Miniature race horses mounted on thumb tacks kept the progress of the race on these charts in all parts of the territory simultaneously.

The sales department's regular weekly bulletin, "The Scoreboard" furnished the up to date figures each week. "Dopester Dan," a fictitious personality, was created to conduct a weekly dope sheet in connection with this bulletin.

As soon as a salesman accumulated his thirty sweepstake tickets necessary to qualify for the prizes, he was advised by telegram in true sweepstake style.

Results

"Fair Athena" representing the Athens District, finally won out in a heated stretch battle over "Lucky Seven," who carried the colors of Springfield District, Number Seven. The winner was piloted by L. Z. Herron, Athens district sales manager, while J. H. Guthrie, in charge of sales in the Springfield District, was "astride" the runner up. Lake Breeze from the Elyria "stable" and guided by J. L. Paradis, captured third place. In winning the "money positions" in the contest each of these districts substantially exceeded their assigned quotas, Athens and Springfield going over the 200 per cent mark.

Convincing evidence of the all-round success of the campaign is furnished by the fact that every district exceeded its quota.

A great deal of credit for this accomplishment goes to F. T. Rainey, New Business Manager and O. J. Haagen, General Sales Manager, the "Chief racing commissioners" of the Sweepstakes Contest, and to each district manager and sales manager who kept their organizations going at top speed throughout the campaign.

COMPLETING THE JOB

Mr. Brian, prominent member of the Hoosier organization, was particularly busy one morning during the current heating campaign. He failed to report until noon, when he brought in a signed contract calling for a house heating unit, an automatic hot water heater and a modern gas range to replace an electric range. However, Mr. Brian did not wear the usual smile that accompanies a deed well done, but looked rather worried.

After lunch he disappeared from the office again. When he returned later in the afternoon the smile of victory was evident. He reported that it was necessary to take ten tons of coal as part payment on the new equipment, but that he had disposed of the coal in the afternoon, to complete a mighty fine selling job.

—The Load Builder

1936 Requirements Committee's Schedule Lists Important Activities Through March

CONTINUING its regular schedule of activities, the American Gas Association Approval Requirements Committee (A.S.A. Sectional Committee, Project 221) and its various subcommittees will hold three important meetings in the first three months of 1936. Late in January a meeting of the Subcommittee on Approval Requirements for Gas Hair Dryers is to be held at the Cleveland Laboratories of the Association. Early in February the Gas Range Subcommittee will convene at the same location for an important two-day session, and then, in March, a meeting of the A.G.A. Approval Requirements Committee will take place.

At the Hair Dryer Committee's session, all comments and criticism received from the industry on the Tentative Approval Requirements for Gas Hair Dryers printed and distributed in November will be considered. For an initial set of standards, the tentative requirements under consideration are so complete that few major changes are expected to be made, although the reactions of hair dryer manufacturers to certain proposed clauses specifying different types of safety and control accessories may form important points of discussion. If the standards are approved, either as they now exist or with minor modifications not involving further technical research, they will be in shape for submittal to the Approval Requirements Committee in March for final adoption.

The work to be executed by the Subcommittee on Approval Requirements for Gas Ranges in February will concern numerous changes in standards proposed to apply to the new seventh edition of the gas range requirements which became effective January 1, 1936. A number of technical reports on gas range requirements research work conducted by the Testing Laboratories will be placed before the Range Committee at that time. These will involve chiefly matters of: Oven inputs and maintenance rates, top burner heat distribution, oven and top burner cooking speeds, and the effect of utensil size upon top burner efficiency. Most importantly, perhaps, the Gas Range Committee will consider revisions of the requirements for ranges designed to use propane or other bottled gas supplies.

Several important matters are scheduled for final action at the hands of the general Approval Requirements Committee in March. Standards for semi-rigid gas appliance tubing and fittings approved last year by both the Approval Requirements Committee and the American Standards Association to go into effect January 1, 1936, but since shown to be indefinite in certain particulars and, therefore, modified accordingly, will be acted upon for the second time, and when approved by the American Standards Association will be published in final form. Extended by clauses insuring that listed fittings be capable of standing up in service on gas appliances, these standards will constitute a much firmer basis for beginning listing tests on such types of accessories.

Revised requirements for both gas space heaters and central heating gas appliances due for application on and after January 1, 1937, are also scheduled for official and final action by the Approval Requirements Committee in March. These two sets of modernized standards are offered as the result of last year's efforts of the Central Heating Gas Appliance and Gas Space Heater Subcommittees, which groups met last on October 18 and November 8, respectively, to review and act upon comments received from the industry.

Following the March Approval Requirements Committee meeting, therefore, it is expected that four sets of standards may be published in final form. Two of them, approval requirements for gas hair dryers and listing requirements for semi-rigid gas appliance tubing and fittings, will appear as first editions. The approval requirements for gas space heaters and approval requirements for central heating gas appliances to be printed will supercede those of the same titles which have been effective since July 1, 1934, and January 1, 1935, respectively.

Copper Pipe for Gas Distribution

(Continued from page 33)

steel mains installed during 1934 are given in Table 3. The first four columns give the actual costs as they appear on our books. However, these figures cannot be used directly to determine the relative cost of steel and copper mains because copper mains are installed only in corrosive soils which are very often heavy adobes in which the cost of trenching is high. On the other hand, steel mains are installed in non-corrosive soils which are usually light sandy loams in which the cost of trenching is low. Then too, most of the copper mains installed during 1934 were installed in cities to replace leaking steel mains, while most of the steel mains were extensions in rural territory to get new business; consequently, there are more pavement replacement costs included in the copper figures than in the steel figures.

In the last four columns of Table 3 those costs that are not affected by the type of pipe used are equalized so that a true comparison of the difference in the cost of mains of the two materials can be made. It is evident that the cost of installing copper pipe is about equal to the cost of installing steel pipe and that the differences in the installed costs of mains of the two materials are caused by the difference in the cost of the two kinds of pipe.

Most of the steel pipe installed during 1934 was installed bare.

The cost of 3" copper pipe shown in Table 3 is low compared to the other pipe costs because that pipe was purchased at an earlier date than the others, at a time when the cost of copper was very low.

A "Free Gas" Promotion

(Continued from page 18)

pliances sold included 113 automatic water heaters, 24 tank water heaters, 57 ranges and 25 Electrolux refrigerators. The total theoretical annual load added by our salesmen was 13,000 M c.f. and by our dealers 12,000 M c.f., making a total of 25,000 M c.f.

Our new business costs for February and March were $4000 higher than last year. This figure added to a slight increase in billing expense constitutes the cost of the campaign above the wholesale gas cost, and the loss in March Revenue, all of which we expect to offset by increased revenue within the next two months.

News of the Gas Industry

Southern Gas Association Annual Meeting Feb. 19-21

The Southern Gas Assn., will hold its annual meeting at Roosevelt Hotel, New Orleans, La., Feb. 19-20 and 21. It will be a joint meeting with the A. G. A. Regional Sales Conference, of which C. B. Wilson, Little Rock Gas & Fuel Co., is Chairman.

The Mardi Gras season officially begins Feb. 21, so that it will give those attending the meeting an opportunity to attend the Carnival. S. L. Drummer, Secy-Treas., Southern Gas Assn., suggests that reservations, especially for the Carnival days, be made early.

The morning meetings for the three days will be devoted to the General Sessions program, and afternoon meetings will be devoted to the Sales Conference Program.

New Bulletin of Arc Welding Supplies Announced by Lincoln

A new booklet illustrating and describing all the newest developments in arc welding electrodes and accessories is announced by The Lincoln Electric Company, Cleveland, Ohio.

This booklet is virtually a condensed manual on arc welding. Complete descriptions, applications and procedures are given for electrodes for all welding purposes—for mild steel, high tensile steel, light-gauge steel, 18-8 stainless steel, 25-12 stainless steel, high manganese steel, cast iron, aluminum; for hard facing to resist moderate shock and abrasion, rolling or sliding abrasion, impact and severe abrasion, and for making tool-steel cutting edges. The complete procedures for each electrode give the polarity, current range, arc volts for every size of every electrode in every welding position.

In addition to complete instruction on the use of all Lincoln Electrodes the new booklet contains illustrations and details of all the latest arc welding accessories and supplies which facilitate use of the electric arc and increase the comfort of the operator. The newest type electrode holders are easier to handle, yet more efficient and more durable than former types. Protective shields, both face and head type, are lighter and more comfortable, yet afford increased protection. Protective clothing including gloves, sleevelets, aprons, leggings and spats are all designed to provide greater comfort for the operator. New welding cable is more durable, yet it reduces operator fatigue by its greater flexibility. Wire brushes, welding booths, supplies for automatic welding, repair parts are fully described.

The new arc welding manual is printed in two colors on coated stock in clear, readable type. Copies are available without charge on request to The Lincoln Electric Company, Cleveland, Ohio.

C. T. Aaron, Gas Industry Veteran, Injured

Charles T. Aaron, veteran of the gas industry formerly executive in such organizations as the A-B Stove Company, the Round Oak Furnace Company and the Caloric Gas Stove Works, sustained very serious injuries in an automobile accident on October 19, 1935, while en route from the American Gas Association Convention in Chicago to New York City, and has since been confined at the Peoples Hospital, Akron, Ohio. Mr. Aaron has been in the gas industry for about 35 years and has held positions with the United Gas Improvement Company and at least 6 major appliance manufacturers.

"Charlie," as he is known throughout the gas business, is anxious to see friends and acquaintances and to learn of events transpiring within the industry. Many of his friends who have heard of his condition have already either called to see him or sent messages of encouragement and cheer. His condition continues to remain critical and he will undoubtedly be confined to the hospital for some time.

Theodore V. Purcell Retires

Theodore V. Purcell, vice president in charge of sales of The Peoples Gas Light and Coke Company, Chicago, Ill., has resigned his post to take effect January 15 after rounding out a half century in the gas utility industry, 35 years of which have been spent with the Chicago gas company.

Retirement of Mr. Purcell means a loss to the gas industry of one of its leading figures. The Charles A. Munroe Award of the American Gas Association which was conferred upon him in 1931, gave tangible form to the recognition which he had enjoyed throughout the industry for his progressive and sound studies in rate making. He was one of the pioneers in the application of promotional rates, his work in this field having begun many years ago when the industry was being revolutionized by the change from coal gas benches to carbureted water gas generators, the decreased production cost opening the way to sales expansion.

Educated in engineering, Mr. Purcell first went to work for the Equitable Gas Company of New York, which was later consolidated with the New Amsterdam Company. After holding executive positions with both companies, he went to Chicago in 1901, and has been with the Peoples company since then. He was made secretary of the company in 1917, and vice president in charge of sales in 1924.

He is credited with having started the first Home Service department in the gas industry, and the steady growth in importance of this phase of the industry's service to customers owes much to his continued interest. Other innovations which Mr. Purcell promoted at the Peoples company include the service annuity system, a new system of general accounting, and scientific employment and service systems. He was one of the promoters and a charter member of the Peoples Gas Club, one of the largest employe organizations in the gas industry.

"The directors and officers of the company desire to express their great appreciation of Mr. Purcell's loyal and efficient service," said President George F. Mitchell in announcing Mr. Purcell's retirement, "and to wish for him a long life of well-earned rest from the arduous duties of his office."

F. X. Mettenet Succeeds T. V. Purcell as V. P. Peoples Gas & Coke Co.

F. X. Mettenet, general sales manager of the Public Service Company of Indiana and the Northern Indiana Power Company, has been elected vice president to succeed Mr. T. V. Purcell, resigned.

Mr. Mettenet comes to the Peoples company after 23 years of experience in the utility field. Graduated from Cornell in 1912, he went to work for the Commonwealth Edison Company of Chicago, and after three years in the construction department was transferred to the sales department, in which field he has been engaged ever since.

Mr. Mettenet became general sales manager of the Northern Indiana Public Service Company in 1923, and in 1929 he was made sales manager of the Public Service Company of Indiana and the Northern Indiana Power Company, the post he resigned to assume his new duties. His record was praised highly by John N. Shannahan, president of the companies, in announcing Mr. Mettenet's resignation.

"Although the recognition of Mr. Mettenet's ability, as shown by his selection for the important post to which he has been named, is most gratifying to his friends and associates, Mr. Shannahan said, "we nevertheless regret the severance of his connection with us. His continued success is the sincere wish of all his associates here."

New Detector for Hydrogen Sulphide

Mine Safety Appliances Company, Pittsburgh, Pa., recently announced the development in its Research Laboratories of a hand-operated instrument for quick, accurate detection and measurement of low but dangerous concentrations of Hydrogen Sulphide in air. Known as the MSA Hydrogen Sulphide Detector, the instrument permits direct readings of the toxic gas in concentration from 0 to .04%, and can be operated by the ordinary workman.

Complete descriptive material on the new instrument may be secured by addressing the manufacturer direct, asking for Bulletin DY-1.

Gas Househeating Development School at M. I. T.

The Industrial section of the New England Gas Assn., in its endeavor to assist gas companies to secure more househeating sales as a result of an intensive gas-heating development training, will, with the cooperation of Prof. Gordon B. Wilkes, conduct a househeating school at Massachusetts Institute of Technology from Jan. 27th through February 1st.

The announcement states:

"Gas heating has undergone a rapid development. The past few years have brought to our attention many new markets for gas heat which have not yet been developed. The gas companies which hope to obtain their share of the large potential load of gas heating must take advantage of recent favorable trends in gas heating.

During the last decade, gas heat has been feeling its way. Until recently, few actual facts existed upon which to build a solid foundation for the large gas-heating load. The pioneering work of gas heating has been capably handled by gas engineers.

Gradually, salesmen were added to the househeating departments. More and more sales promotional work has been demanded. Sales development is now paramount. As a result, the call is for more selling and less engineering. It is logical that engineers be developed into sales engineers. Likewise, it is just as essential that salesmen be developed who can suggest the best solution to customer problems. The successful salesman must gain the confidence of his prospects by possessing a basic knowledge of what he has to offer.

Application blanks may be had at the New England Gas Assn., 41 Mt. Vernon St., Boston, Mass.

The M. I. T. Gas-heating School will provide a thorough *sales* training in gas heating for the engineer and a necessary foundation upon which the salesman can build *successful* sales in the face of competition. This idea carries throughout the school.

Considerable material in the course consists of valuable information which has not yet been published. For instance, short-cut, gas-estimating methods will be given which enable the salesman, without the engineer's assistance, to give an approximate gas-heating estimate requiring not over ten minutes for the average case. This short-cut, estimating method will enable the salesman to weed out his prospects "on the spot" and will minimize his repeat calls. Instead of an engineer making a careful analysis and giving an estimate on every prospect, he will make surveys only of prospects who are ready to sign on the dotted line. It is quite apparent that the use of a short-cut method of estimating will greatly reduce the new-business cost per dollar of revenue gained."

The program for the week is as follows:

1. General Principles of Heat.
   a. Four forms
   b. Sensible and latent heat
   c. Specific heat
2. Measurement of Temperature.
   a. Instruments available
   b. Their application
3. Calculation of Heat Losses.
   a. Fundamental Laws
   b. Transmission Losses
   c. Infiltration Losses
   d. Calculations of heat losses in typical buildings
4. Short-cut Methods of Estimating Heat Loss for Salesmen.
5. Laboratory Demonstration of Heat Loss Through Typical Standard Walls.
6. Heat Loss in Flue Gases.
7. Laboratory Demonstration of Flue Gas Determinations.
8. Advantages and Disadvantages of Various Types of Heating Systems in Reference to Gas Application.
   a. Hot water, steam, gravity air, air conditioning
   b. Principles involved
   c. Individual gas-unit heaters
   d. Controls
9. How to Determine the Annual Fuel Consumption.
   a. Effect of heating system
   b. Effect of reduced temperatures and intermittent heating
   c. Effect of insulation, storm sash, flue dampers, etc.
   d. Effect of heat available from other sources such as motors, lights, machinery, people, etc.
10. Laboratory Demonstration of Condensation Test of Steam Boiler.
11. Application of Conversion Burners.
12. Proper Venting Methods.
13. Laboratory Demonstration of Efficiency of Unit Heater.
14. Planning a Househeating Selling Drive.
15. Training of Salesmen.
    a. Qualifications desired
    b. Fundamentals of gas industry
16. Where and How to Obtain Prospects.
    a. Canvassing
    b. Advertising
    c. Using the users
    d. Employees
    e. Dealers, plumbers
    f. Builders, architects
17. How to Develop Prospects.
    a. Survey
    b. Presentation
    c. Recognizing a prospect
18. Closing a Sale.
19. Reasons Why Customer Should Heat with Gas.
20. How to Answer Objections to Gas Heat.
21. Actual Selling Demonstration.
22. Five Principles of Salesmanship.
23. Proper Use of Sales Presentation Manual.
24. Market Analysis.
25. Advertising Gas Heat.
26. Educating Employees.
    a. Obtaining cooperation
    b. Inducements
27. Development of Dealer Policy.
28. Educating Architects, Builders.
    a. Contacts
    b. Pamphlets
29. How the Engineer Helps Sales.
30. Supervisor's Job.
31. Selling Air Conditioning.
32. Market for Commercial Gas Heat.
33. Market for Domestic Gas Heat.

C. Nelson Dewey Joins Crane Company

C. Nelson Dewey has joined the Premier Heater Division of Crane Company as Field Representative to be attached to the White Plains, N. Y., Bridgeport and New Haven, Conn., branches of Crane Company, according to an announcement by Stanley Jenks, Eastern Manager. The Premier Heater Division of Crane Company specializes in the sale of storage gas water heaters, gas-fired boilers and conversion burners manufactured by the Bastian-Morley Company, La Porte, Indiana.

W. M. Chace Valve Co. Changes Corporate Name

At a recent meeting of its board of directors, the W. M. Chace Valve Company changed its corporate name to W. M. Chace Company, dropping the word "Valve."

The change in name does not involve any change in company policies, management, or personnel. The decision was reached after considering many such suggestions received from a number of Chace customers and friends.

Rapid strides in the manufacture of Bimetal has made Chace Thermostatic Bimetal the major product of the W. M. Chace Company. So great has been the volume of Chace Bimetal production that the Chace plant was doubled in size in 1934. Late in 1935, another extensive plant addition was necessary.

D. B. Barnum, President American Standards Assn.

Mr. Dana B. Barnum, president Boston Consolidated Gas Co., Boston, Mass., was elected president of the American Standards Association at their annual meeting held in New York during the week of December 9th.

GAS PURIFYING MATERIALS CO.

WHERE RESEARCH AND DEVELOPMENT GO HAND IN HAND WITH OPERATION AND PRODUCTION

GPM IRON HYDROXIDE

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PROVIDENCE, R. I.

James B. Black, Elected President Pacific G. & E. Co.

James B. Black was elected president of the Pacific Gas and Electric Company at a meeting of the company's directors on November 20. He took over his duties at once, succeeding the late A. F. Hockenbeamer.

JAMES B. BLACK

Mr. Black is a Californian and formerly was vice-president and general manager of the Great Western Power Company, which was absorbed by the P. G. and E. in 1930. He has had twenty-three years' experience in the utility industry—fifteen in operating positions and eight in activities relating to financial matters. He is nationally known as an able and progressive executive.

In the words of C. O. G. Miller, speaking for the board of directors: "Mr. Black, who is 45 and in the prime of life, was chosen president because of his wide knowledge of public utility affairs. He has had experience in matters of finance as well as operation. He is forward looking and public spirited and, as a Californian, has a clear understanding of the problems facing the gas and electric utilities in this state."

Leeds & Northrup Issue New Broadside

So that users can readily select the instruments they need for measurements in laboratory, plant or field, the entire L&N line for research, teaching and testing has now been listed, briefly described and priced in a compact broadside which serves as an exceptionally useful catalog.

A copy may be had by asking Leeds & Northrup Company, 4934 Stenton Avenue, Philadelphia, Pa., for "Broadside E".

CONVENTION CALENDAR

February

6- 8 Eastern Natural Gas Sales Conference, William Penn Hotel, Pittsburgh, Pa. Geo. L. Scofield, Republic Light, Heat and Power Co., Buffalo, N. Y., Chairman.

13-14 New England Gas Association, annual meeting, Boston, Mass.

13-15 Mid-West Regional Gas Sales Conference, Sherman Hotel, Chicago, Ill. H. J. Dropp, Milwaukee Gas Light Company, Milwaukee, Wis., Chairman.

19-21 Southern - Southwestern Regional Gas Sales Conference, Roosevelt Hotel, New Orleans, La. C. B. Wilson, Little Rock Gas and Fuel Co., Little Rock, Ark., Chairman.

April and May

2- New Jersey Gas Association, Berkeley Carteret Hotel, Asbury Park, N. J.

13-15 Mid-West Gas Association, 31st annual conference, Minneapolis, Minn. R. B. Searing, Secy., 302 Utilities Building, Sioux City, Iowa.

29-May 1st Missouri Association of Public Utilities, annual convention, Jefferson Hotel, St. Louis, Mo. Jesse Blythe, Asst. Secy., 101 West High St., Jefferson City, Mo.

5- 8 Natural Gas Department, American Gas Association, Annual Meeting, Dallas, Texas, A. E. Higgins, secretary, 709 Dallas Gas Building, Dallas, Tex.

July

8-10 29th Annual Meeting Canadian Gas Association and Northwest Conference Pacific Coast Gas Association, Hotel Vancouver, Vancouver, B. C., Canada.

October

Week of October 26th American Gas Association, 18th annual convention, Atlantic City, N. J. Alexander Forward, managing director, 420 Lexington Ave., New York, N. Y.

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Gas Meters
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Service Cleaners
Diaphragms
Repairs

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Latch Regulator

It Stops the Flow of Gas if Pressure falls too low

ON a low-pressure burner or furnace, the Fulton Cut-Out Latch Regulator stops the flow of gas if pressure falls below the desired minimum. Whenever that happens, the cut-out latch will operate automatically to bring the valve to its seat and lock it there. Flow will not resume until the operator goes to the valve and opens it by hand. This eliminates completely the hazard for which the regulator is designed. Write for C-F Bulletin 2987.

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OBITUARY

S. F. HAYWARD

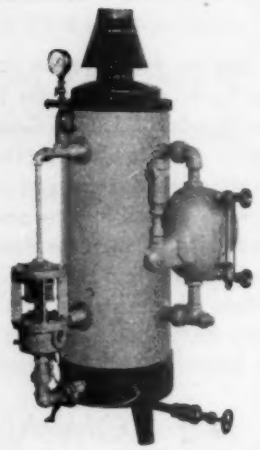
Mr. S. F. Hayward died Saturday afternoon, December 7 at 4:30 p.m. at the age of 89 at his New Jersey home, East Orange, N. J.

Mr. Hayward was born on September 16, 1846, at Fox Lake, Wisconsin, of Scotch ancestry, educated at Olivet University.

During his early business life, Mr. Hayward organized and developed a very successful fire extinguisher business which is still operating under his name, S. F. Hayward & Company, and promoted a device which originated with him in the late eighties the "Hayward Hand-Grenade," a bottle type of extinguisher which became very popular and is in use extensively today. An interesting event in connection with Mr. Hayward's development and promotion of this hand-grenade fire extinguisher is the fact that he had recently gone to New York at the time of the Chicago fire. Mrs. Hayward was amongst the refugees who were in Chicago at the time. In the late eighties Mr. Hayward sold out his interest in the fire extinguisher field in order to devote all his talent, time and energy to the gas industry and, together with Mr. W. H. McDonald and other well known gentlemen he organized the then Connelly Brothers Company under the name Connelly Iron Sponge & Governor Company. Mr. Hayward was secretary and treasurer of the company for 35 years, president for about 10 years and chairman of board since 1933. The Connelly gasoline motor for street car use was built by the original Connelly Company as well as gas apparatus but the motor business was disposed of and the new company confined their efforts to development and promotion of Connelly station and service governors, (many of the original Connelly automatic loading governors sold 50 years ago are still in service), they also built and sold the Connelly steam-jet exhauster and manufactured gas purifying material under a patented process and patented trade name "Iron Sponge." At that time the only plant of the company was in Elizabethport, New Jersey, but in about 1900 Mr. Hayward established a branch in Chicago which has been operating very successfully ever since. Mr. Hayward is very well known by the older men of the gas industry and still carried the nickname so affectionately given him by his gas friends who always addressed him as "Governor" Hayward.

His passing ended a long, extremely useful, and very happy life of 89 years. His death has been a great shock to his family, relatives, friends and many associates. The gas industry nationally has held Mr. Hayward in high esteem, affection and respect and will regret this passing of another member of the Old Guard.

Pressing Machine and Steam Iron— BOILERS



P. M. LATTNER MFG. COMPANY
CEDAR RAPIDS, IOWA

Tom Hopper Honor Guest at Birthday Testimonial

Thomas B. Hopper, M. E. General Superintendent of the Washington Gas Light Co., Washington, D. C., was guest at a birthday dinner in his honor at the Willard Hotel, Dec. 10th. Sixty friends and associates gathered from far and near, from inside and outside of the organization, to testify to the esteem and respect with which he is held, not only in the company, but throughout the gas industry. "Doc" H. L. Leonard gave the young fifty-year-old a searching physical examination. The report gave the patient fair hopes of another healthy fifty years. So as not to embarrass him, the 178 shown on the report was stated to be his weight and not his golf score.

Mr. M. L. Sperry in a colorful and humorous vein presented to Tom a set of "instructed" golf clubs including "woods" specified for use from 250 to 5,000 yards. To save the eyes of the rising young golfer, when in sand traps, the Safety Department contributed a pair of safety goggles. Mr. Sperry expressed the hope that Tom would learn to use the clubs as that would ensure his living to a ripe old age.

New Non-Sparking Tool Catalog

The Superheater Company of New York and Chicago, have just issued their catalog 20,001-1 on the Elesco non-sparking tools.

The use of these tools will prevent the emission of sparks, with attendant fire or explosion where there are inflammable or explosive gases. Special hardening alloys are incorporated in the cutting tools.

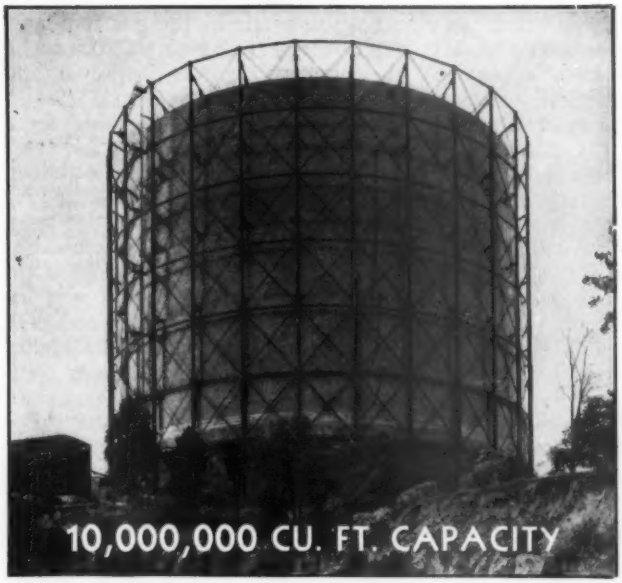
Pittsburgh Equitable Add To Research Staff

In keeping with the company policy of furthering its service to the gas industry through technical research, the Pittsburgh Equitable Meter Company has added two new members to the Research and Product Development Section of its Engineering Department at Pittsburgh.

Mr. E. M. Cloran, who was graduated from Harvard University in 1928 with a Bachelor of Science Degree in Engineering, comes to his new position with a valuable background of practical engineering experience. First employed following graduation from college by Stone and Webster Corporation of Boston as a junior engineer, he advanced by successive steps to become a plant engineer for the Atmospheric Nitrogen Corporation of Hopewell, Virginia, and more recently held a sales engineering position with the Consolidated Ashcroft Hancock Corporation of Bridgeport, Connecticut.

Mr. H. J. Evans is a University of Oklahoma man who was graduated with a Bachelor of Science Degree in Mechanical Engineering in 1933. Returning to school the following year he took post graduate work in petroleum engineering for which he was awarded a master's degree.

Messrs. Cloran and Evans will work in the physical laboratories of this company in Pittsburgh under the direction of Chief Engineer Allen D. MacLean and the immediate supervision of Research Head L. M. Van der Pyl.



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"It Bends with the Heat"

It doesn't matter what you manufacture or where your product is used, if you have a problem of controlling the temperature or if you desire any change in temperature to automatically close a door, trip a switch, regulate fuel supply, shut off water flow or to perform other duties, we suggest you investigate Chace Thermostatic Bimetal. Absolutely dependable. Sold in sheets, strips and forms.

W. M. CHACE CO.
1610 Beard Avenue - - - Detroit Mich.

Importance of Meter Reading Records and Equipment

(Continued from page 17)

polished surface these covers do not accumulate dirt and therefore result in eliminating the soiling of sheets and are always sanitary. These covers should not be confused with the bakelite material which uses a fibre or paper base because while the outward appearance is very much the same when they are new they will chip, crack and break very easily.

Housing Equipment for Binders

The type of housing equipment for meter reading binders is of particular importance due to the reference activity and the number of changes that must be posted daily. These binders should be housed at the point of use because the effort of carrying the binders from a vault or other housing unit to the desk where changes are posted and then returning them consumes fully ⅓ of the total time. Reference to these binders for the purpose of securing information in connection with high bill complaints or other disputed bills of any kind, is very much faster with this type of housing because interdepartmental telephone communication facilities may be provided from the point of customer contact direct to the clerks who perform the clerical work on these binders.

It has been found that three drawer legal size fireproof files equipped with special partitions, dividers and a posting table, either at the side of the unit or between two units, provides the most economical as well as the most efficient housing facilities that can be used. This represents the maximum of economy not only in the original investment but also in the floor space required, as well as clerical efficiency.

Importance of Fire Protection for Meter Reading Binders

The use of ledgerless bookkeeping makes the meter reading books indispensable because they represent the only record of continuous readings and consumption. This is the record which must be used as a basis for handling complaints and making adjustments. They also represent the basis for rendering all bills in that this is the only record showing rates, connected load, maximum demand, demand charges, service charges and other factors which are absolutely essential for the purpose of preparing the monthly bills. Reconstructing this information would not only be tremendously expensive but it would be practically impossible to do so with any reasonable degree of accuracy. In addition to this, it would very likely cause a substantial delay in beginning the meter reading after a fire.

The cost of reconstruction would of course include new binders, new sheets and the clerical expense in transcribing the necessary information, but these factors in the replacement cost would be insignificant in proportion to the real cost encountered. A physical survey at each point of service would have to be made. The previous reading does not ordinarily appear on the ledger stub and it would therefore be necessary to secure this from either the billing abstract after it had been matched up with the amounts shown on the ledger stub, or from the bills or receipts in possession of the customer. In spite of all possible precautions that might be taken a large number of errors would inevitably result and these errors would in all probability be responsible for an equal number of customer complaints, and complaints will, in almost every instance, impair customer good will. The importance and value of meter reading records cannot be over-estimated and it is therefore of particular importance that this subject should receive the attention and consideration to which it is entitled.

How to Avoid Liability for Damages

(Continued from page 24)

For instance, in Kendall v. People's Gas & Fuel Co., 158 So. 254, it was shown that a gas company operates under a franchise which provides that in the construction, operation, and repair of its distributing system the company shall use every reasonable and proper precaution to avoid inflicting damages or injury to persons or property.

The company's mains, laid in the middle of the street, are provided on top with nipples or risers projecting about four inches, to which a service pipe is connected, by means of a union or L, from a house to the main. This service pipe is owned by, and was installed by a plumber selected, employed, and paid by the property owner. As required by the franchise, only the actual connection at the main was made by the gas company. After the service line was put in by the plumber, it was inspected and approved by the city.

On account of gas leaking from the service line certain valuable trees adjacent the sidewalk were killed. The property owner sued the gas company to recover $2,000 damages.

However, since the franchise did not obligate the gas company to assume liability and no proof was introduced indicating that the company employes were negligent, the higher Court refused to hold the gas company liable and said:

"There is no reason why a property owner should not recover for the damage peculiar to him and his property, caused by the willful act or negligence of a third party. . . . He is entitled to recover to the extent that the value of his property has been peculiarly and materially decreased. . . . Under the law, a gas company is not an insurer against damage or injury from the escape of gas from its pipes, unless such an obligation is imposed in its franchise. . . . We cannot see that defendant (gas company) can be charged with any knowledge of the pipes' condition until notified of the leak. Escaping natural gas is most difficult to discover. It cannot be seen, and has little odor. . . . We do not find that defendant (gas company) has committed any acts of negligence or omitted to perform any duty imposed upon it.

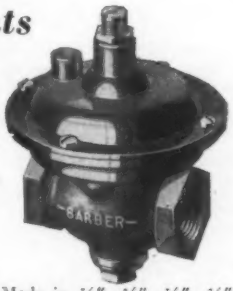
Obviously, however, a gas company may be liable for injury to trees caused by negligence of its employes, particularly if as usual the company lays the service pipes which effect the damage.

Painted Realism Adds Punch to Window Display

(Continued from page 22)

You will notice that these sets are without what we call the human interest touch. By that, I mean, they have no personal or first-person copy appeal. Yet they have just as much direct selling appeal as any number of carefully painted figure and head illustrations. Try them out in your own windows the next time you make a window change. Use them for floor and exhibit displays after they have served their usefulness in the windows. Every cent you invest in this type of window display advertising will come back to you in actual sales. Use window displays; they are great sales-builders, right at the point of purchase.

Barber Gas Pressure Regulators *Eliminate Gas Bill Complaints*



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Increasing numbers of Gas Appliance Manufacturers, Gas Companies, Jobbers and Dealers have switched to Barber Regulators because of their exceedingly low pressure drop, compactness, bronze bodies, and precision of operation. Why not write today for complete literature, prices and discounts on the entire Barber line of Burners and Regulators?

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SPRAGUE
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are standard equipment
the World over
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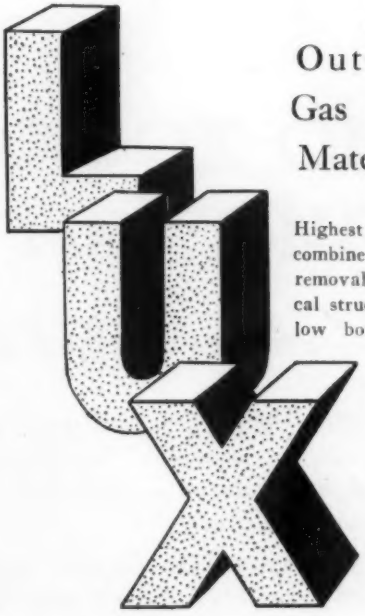
THE SPRAGUE METER CO.
Bridgeport, Conn.

GAS SERVICE STOPS

SINCE 1869 Hays has built dependable brass products for the Gas Industry. Standard, Special Weight, Heavy Pattern and High Pressure Stops to meet all requirements are manufactured by Hays in a full range of sizes. Write for Catalog No. 4 today.

HAYS MANUFACTURING CO. ERIE, PA.

The Outstanding Gas Purifying Material » » »



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The Reliable Shut-Off for Street Mains

Equipped with Improved Patented Locking Sleeve, which locks both handles to the pipe. Stopper cannot slip. Gas cannot pass.

Safety Gas Main Stopper Co.
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Kitson Safety Devices (Lovekin Patents) for Domestic Water Heaters | Quality Brass Goods for Gas, Water and All Plumbing Uses.
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Announcing

A NEW HANDBOOK ON GAS WATER HEATING

A 136 page book, size 5½ x 8, bound in cloth.

This book will comprise the series of articles published in the American Gas Journal under the caption "Domestic Gas Utilization," Water Heater Division, written by Charles W. Merriam, Jr., Division Commercial Manager, Roanoke Gas Light Co., Roanoke, Va.

Mr. Merriam has added new material to each chapter, bringing it up-to-date. This book tells the salesman what he has to know to sell successfully gas water heaters.—How to figure correct capacities to give a satisfactory service. It gives valuable material to help build the gas water heating load.

Chapter 1—Engineering ABC's

Chapter 2—Water Heater Types

Chapter 3—Hot Water—How Much?

Chapter 4—Gas Consumption for Water Heating

Chapter 5—Water Piping & Installation

Chapter 6—What Size Heater

Chapter 7—Automatic Heater Accessories

Chapter 8—Competitive Water Heating

Chapter 9—Hot Water—For What?

The National Gas Water Heater Campaign sponsored by twenty manufacturers begins February 1st. The Water Heater Committees of the American Gas Association and the Gas Appliance and Equipment Manufacturers Association will furnish you every sales help except TRAINED SALESMEN. A study of Mr. Merriam's book will fit your salesmen to get the most out of the water heater campaign. Every water heater salesman will want his copy.

Price of single copies $1.50 postpaid.

Liberal discounts for quantities.

Ready for delivery early in February.

AMERICAN GAS JOURNAL

53 Park Place **New York City**

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Connelly District Regulators are designed to be manually adjusted to give a required constant pressure on the outlet with a minimum of maintenance. They are fully enclosed, self-contained and may be submerged without affecting the operation. All Connelly District or Station Regulators can be converted inexpensively for high pressure duty.

To meet the increasing demand for Appliance Regulators, Connelly has developed a full line of weight loaded and spring loaded Regulators. The rugged, yet simple construction of these Regulators practically eliminates the necessity for inspection and service.

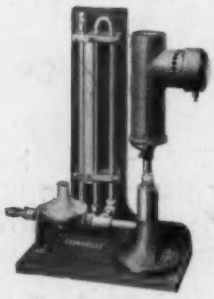
Connelly Service Regulators reduce high inlet pressure to any desired outlet pressure. Careful workmanship assures efficient operation and long service with a minimum of maintenance.

Write for Bulletin 200-B-1 covering Gas Regulators

Connelly Back Pressure Valves provide positive check against reverse flow in any emergency. They insure safety on industrial burners using boosted air pressure.

Bulletin 301-B-1 will interest you

CONNELLY CALOROPTIC



This device is a direct-reading BTU indicator. Simple—Accurate—Convenient. For any kind of gas but especially valuable on Mixed Gas Installations. Illustration shows the Caloroptic with photo-electric cell and the Connelly Alarm Signal Unit to indicate the direction and amount of any change from normal. When the set limits are exceeded, alarms are sounded.

Full description may be obtained by writing for Bulletin 405-B-1.

UNIVERSAL "U" GAUGES
Model C

A real "Universal" Gauge justifying universal use, low in price and almost indestructible. Tubing of unbreakable clear glass substitute. Tubes will stand over 100 lbs. pressure and are not affected by water, glycerine, mercury or other petroleum oil.

Write for further information.

CONNELLY

CONNELLY IRON SPONGE & GOVERNOR CO.

CHICAGO, ILLINOIS **ELIZABETH, N. J.**

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